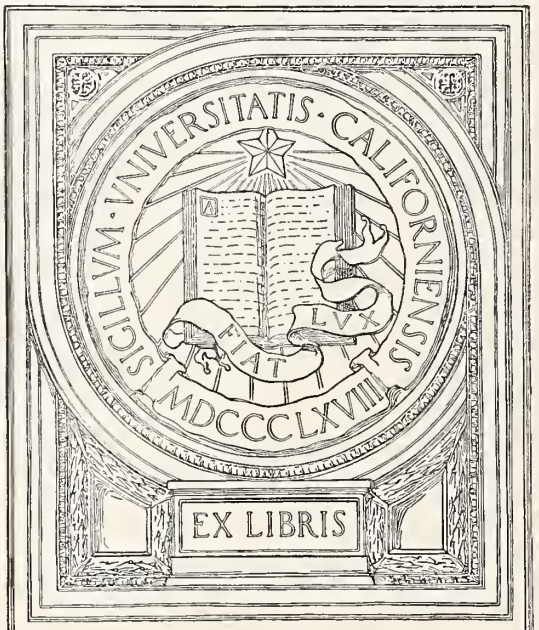
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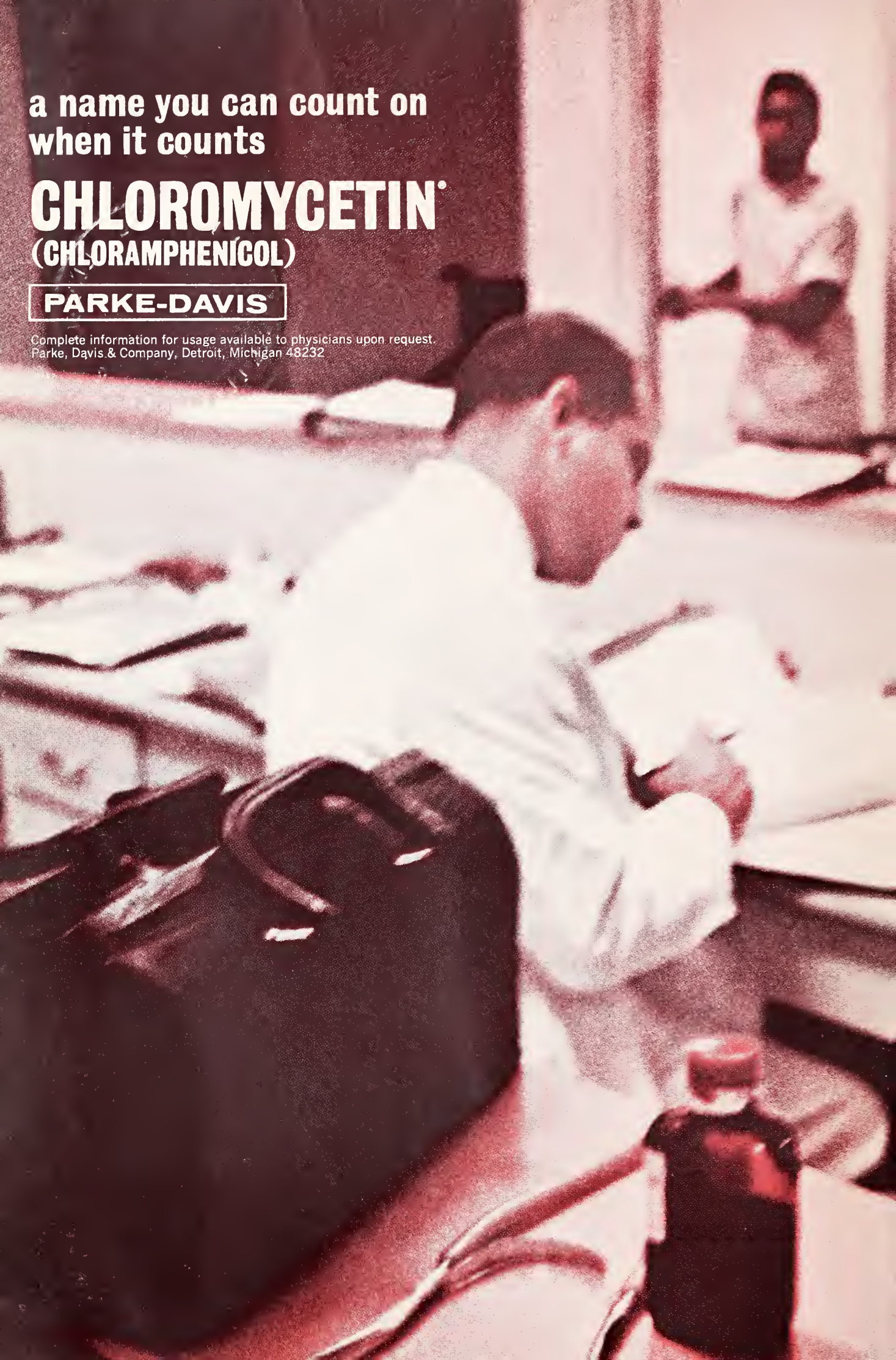
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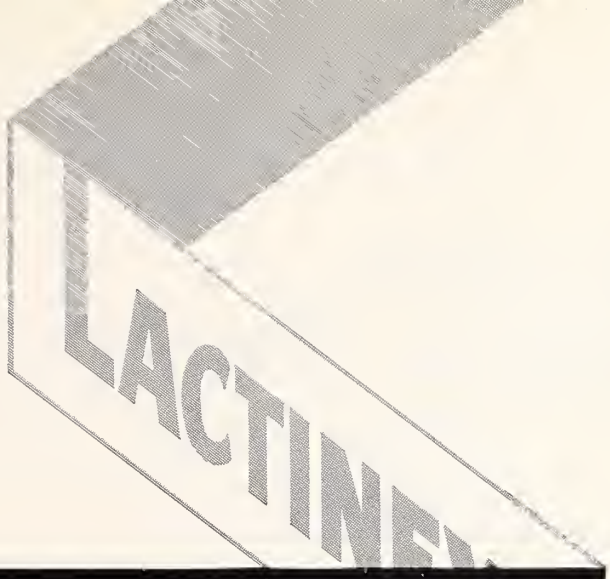
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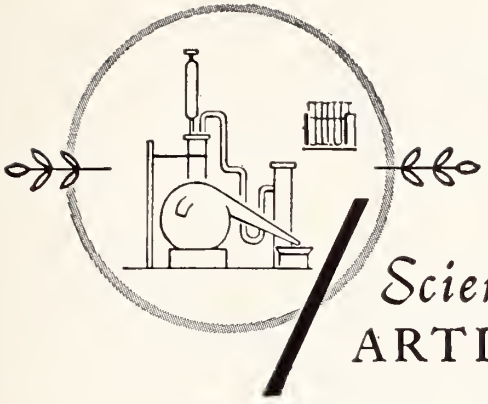
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Scientific
ARTICLES

Heredity for Clinicians

—*Genetics and the Practicing Physician*

R. NEIL SCHIMKE, M.D.,* ***Kansas City, Kansas***

Often considered to be of interest only to investigative scientists, genetics has begun to assume a growing role in clinical medicine. This paper presents some basic facts about heredity, and associates present-day knowledge in this field with clinical practice to hint at a much greater significance than is commonly realized.

Introductory Comments

GENETICS, OR THE STUDY OF HEREDITY, dates back thousands of years to early agricultural civilizations when man first domesticated plant and animal life for food. Modern genetics, however, is a young discipline, having originated with the rediscovery in 1900 of Mendel's principles, published some 35 years earlier by this thoughtful and conscientious monk. Working with sweet peas, Mendel formulated the concept of the gene as the basic unit of heredity, defined dominance and recessiveness, and established the ratios expected in the offspring of various mating types. In the early part of the twentieth century, his concepts were reapplied and extended by agronomists and animal breeders interested in improved roses, better corn, and more productive livestock.

Although human genetics in a clinical setting was considered by Sir Archibald Garrod in his famous 1908 treatise on inborn errors of metabolism, few were aware of the fundamental molecular similarity of inheritance in plants, animals and man. Today, advances in biochemical and biophysical techniques have permitted us to define more closely the gene and its activity. A contemporary geneticist has made the facetious comment that what is genetically true for *E. coli* is also true for an elephant. He could have extended the resemblance even further to include the most sophisticated creature on earth, man himself, for we now know that the gene is a specified length of deoxyribonucleic acid (DNA) and that each gene controls the formation of a single chain of amino acids (polypeptide) whether it be in *E. coli,* elephant or man.

DNA, a long helically coiled molecule, consists of repetitive sequences of four purines and pyrimidines, adenine, thymine, guanine and cytosine. These four compounds are found in the DNA of every organism and are collectively called nucleotides. Of critical significance, of course, is the arrangement of these four compounds in the DNA, for the information specifying which amino acids occur in any polypeptide and in what order they are found is determined by the sequence of the nucleotides in the DNA. A specific triplet or series of three nucleotides constitutes the genetic code for each amino acid, and different amino acids have different code triplets. The genetic code is universal; i.e., a code word specifying the amino acid phenylalanine in a micro-organism is the same code word operative in man. Furthermore, the genetic message is transcribed and translated by the same fundamental mechanism in virtually all living creatures by means of another macromolecule,

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ribonucleic acid (RNA), enzymes, and a source of energy.

A native Kansas physician, Dr. Walter Sutton, while a graduate student in biology, first equated the gene and the chromosome. He theorized that a gene was actually a part of a chromosome, and thus the chromosome was simply a larger unit of heredity, composed of many genes. Modern techniques have confirmed that chromosomes are essentially long stretches of DNA along with some associated RNA and special proteins, both of which may act in part as regulators to control the reading of the genetic message.

Basic Genetic Theory

Genetics is frequently considered by physicians to be a body of background knowledge with no direct patient application—an unfortunate attitude since genetics may be applied directly in the clinic just as physiology and biochemistry. Effective patient care requires that the contemporary physician have a fundamental knowledge not only of general genetic principles but also their usefulness in the direct management of patients. Even simple disorders such as peptic ulcer or renal calculi, which for the most part have multiple etiologies, may be associated with a syndrome known as multiple familial endocrine adenomatosis, a dominantly inherited disorder involving adenomatous change in any or all of the endocrine glands. Obviously the patient with peptic ulcer or nephrolithiasis on the basis of pancreatic and parathyroid adenomas secondary to this abnormal gene will be the unusual patient. However, it is imperative that physicians be aware of such genetic defects especially if a strong family history is present, since removal of the adenoma is essential for effective treatment.

In order to fully understand the application of genetics to clinical medicine, a brief review of Mendel's concepts is in order. First of all, man is a diploid organism. Each cell contains a "set" of hereditary material derived from each parent, and these sets are paired. The chromosomes are present in pairs *(homologous chromosomes)* and, consequently the genes on the chromosomes are paired. A pair of genes or *alleles* on a pair of homologous chromosomes determines a specific hereditary trait. If the two alleles are identical, the individual is *homozygous* for the trait; if they are different he is *heterozygous*. One member of every pair of either genes or chromosomes is derived from each parent at meiosis. During meiosis, the chromosome pairs (and alleles) separate from each other as the diploid number of chromosomes present in somatic cells or germ cell precursors is reduced to the haploid number characteristic of ova and sperm. The process of separating one allele from its opposite number is known as *segregation*.

The diploid number of genes and chromosomes is restored when both members of a pair of alleles are brought together in the same cell nucleus at fertilization. Only genes specifying the same function occupy the same relative place or *locus* on a chromosome. A pair of genes specifying a different function (non-alleles) occupy a different locus on that chromosome or perhaps are located on another chromosome. While alleles segregate at meiosis, non-alleles are said to undergo *assortment;* that is, the distribution in a gamete; i.e., spermatocyte or oocyte, of one pair of alleles is independent of the distribution of any other pair of alleles *(Figure 1)*. The concept of *linkage* indicates that some genes occur in close physical relationship to each other on the same chromosome. Linkage is detected by an alteration in the frequency with which some types of gametes occur relative to other possible types.

FIGURE 1

	(1) Segregation (alleles)	(2) Assortment (non-alleles)
Primitive Germ Cell	Aa	Aa ; Bb
Meiosis	↓	↓
Sperm or ova	A or a	AB or Ab or aB or ab
Ratio	1 : 1	1 : 1 : 1 : 1

Figure 1. Normal meiosis. Alleles segregate from each other (1), while non-alleles are said to undergo assortment (2). With assortment, the distribution of A or a is independent of B or b. If the Aa and Bb loci are linked, the ratio of possible gametes varies significantly from 1 : 1 : 1 : 1.

A *mutation* or an alteration in the genetic message will be reflected in the gene product, the polypeptide chain. For example, sickle-cell hemoglobin results from a single nucleotide change in the beta chain gene. Because of this simple and seemingly minor event, the amino acid valine replaces the normally-occurring glutamic acid at a specific position in the finished beta chain, with all the consequences well known to physicians. A mutation can occur in the somatic cells as well as in the germ cells. If a mutation occurs in the somatic cells it will not be passed on to subsequent generations whereas those mutations occurring in germ cells can be potentially transmitted to an offspring. Not surprisingly, most mutations are harmful whether somatic or germinal, as any change in a well-organized mechanism might be expected to decrease the efficiency of that mechanism. Somatic mutations, while of no genetic importance, are probably the source of many malignancies. Very rarely a mutation can be beneficial and can result in increased

efficiency. The gene carrying this beneficial mutation will usually increase in frequency in a population by the process of *natural selection*. The concept of natural selection is, of course, fundamental to the theory of evolution.

Cytogenetics

Approximately ten years ago it was discovered that man had 46 chromosomes—44 autosomes (22 pairs) and 2 sex chromosomes, XX in the female and XY in the male. The human chromosome complement is generally determined by tissue culture of peripheral blood lymphocytes, but bone marrow, skin and other tissue can be used. *Figure 2* shows a human karyotype after preparation and rearrangement.

Abnormalities of both chromosomes number and structure have been described. The term *trisomy* refers to the abnormal presence of three homologous chromosomes rather than two. One of the most common trisomies is found in mongolism or Down's syndrome where the number 21 chromosome is present in triplicate. Two other well-recognized trisomies have been found in man, trisomy of the 13-15 or D group and trisomy of the 16-18 or E group. As these latter two syndromes involve larger amounts of excessive genetic material than mongolism, they are associated with more severe malformations and are usually lethal at or shortly after birth.

Abnormalities in the number of sex chromosomes have also been described, and some of these are familiar to medical personnel. Monosomy or the absence of one member of a pair of homologous chromosomes has been described only for the X-chromosome. The patient with an XO chromosome constitution and therefore 45 chromosomes instead of the usual 46, suffers from gonadal dysgenesis or Turner's syndrome. Patients with YO or monosomy for any of the autosomes have not been described and these conditions are presumably lethal. The presence of extra X chromosomes is not rare and a male patient with an XXY chromosome complement and 47 chromosomes has Klinefelter's syndrome. Even larger numbers of extra X chromosomes have been found and not surprisingly are associated with more significant abnormalities. What is unusual is the fact that these "extra X" syndromes are not lethal, as are most of the disorders involving supernumerary autosomes. Dr. Mary Lyon of Harwell, England, has offered an explanation for this finding and the hypothesis bears her name. Currently, it is thought that the extra X chromosomes are genetically inactivated sometime between the 12-16th day of intrauterine life. The morphological counterpart of this inactivation is the sex chromatin or *Barr body*, a deeply staining structure found near the nuclear membrane of somatic cells such as those from the buccal or vaginal mucosa. This event probably represents a "dosage compensation" phenomenon, accounting for the fact that a normal female with two X-chromosomes does not have twice as many X-chromosomal genes (producing twice as much gene product) as a man with only one X. One of her X-chromosomes becomes randomly inactivated in every cell, and she thus has a single Barr body. The exact reason why women with the Turner syndrome (XO) or with multiple X-chromosomes are different from normal women with one active X-chromosome is not totally clear. Presumably, either those events taking place prior to inactivation are critical for normal female development, or parts of the "inactive X" are, in reality, still operative. A normal man has no sex chromatin body as he has only a single X-chromosome, presumably active in all cells. The patient with the Klinefelter syndrome (XXY) has a single Barr body, the female patient with an XXX complement has two Barr bodies and so forth. In other words, the number of Barr bodies equals the number of X-chromosomes minus one. The buccal smear is often used to aid in the diagnosis of intersex states and in the study of fertility problems.

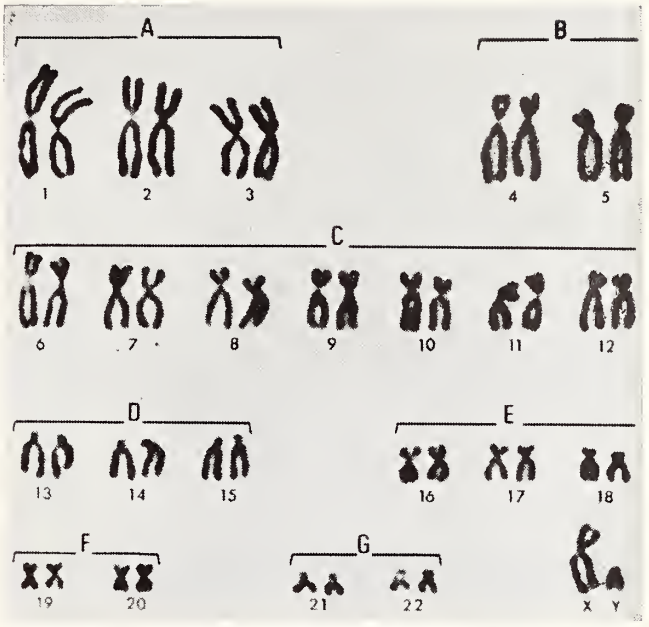


Figure 2. A normal human karyotype. The arrangement and nomenclature conform to a world-wide standard and are based on size differential, position of the centromere, the presence of secondary constrictions and so forth.

Numerical changes in chromosomes arise from errors during cell division. These errors are of two general types: *anaphase lag*, where a chromosome does not move in the normal manner into a daughter cell nucleus and is lost in the cytoplasm; and *nondisjunction*, a condition in which there is asymmetric separation of the chromosomes such that one daughter cell

receives an extra chromosome and the other lacks the same chromosome *(Figure 3)*. If these distributional errors occur in somatic cell division; i.e., sometime after fertilization, the individual is said to be *mosaic,* with a mixture of two or more cell lines, each having a distinct chromosome complement. An example of this is the XO/XX patient with some features of Turner's syndrome. More complex mosaics have been described and their clinical presentation may be quite variable, depending upon both the timing of the distributional error and the tissue in which it occurred.

Structural chromosome changes have also been observed. One of the most common types is a *deletion* or loss of part of a chromosome. Syndromes involving such a partial loss have been described for chromosomes 4, 18, 21 and X among others. A diagnostically significant deletion of the short arm of chromosome 21 (the so-called Philadelphia chromosome) is found in the bone marrow of patients with chronic myelogenous leukemia. Another common type of structural change is a *translocation.* In this abnormality, a piece of one chromosome has been transferred to another, such as in a 15/21 translocation. The result of this type of structural rearrangement is often aberrant chromosomal distribution during meiosis, and the parent who carries the rearrangement in balanced form has a much greater chance of having an abnormal child than a normal parent of the same age. Other structural abnormalities involving parts of chromosomes include *inversions* and *duplications.* The former might be associated with phenotypic abnormalities due to a possible defect in sequential translocation of the genetic message, but it would probably not be observable by standard microscopic techniques. The latter might be detectable as a "partial" trisomy syndrome.

Mendelian Inheritance

Abnormalities of chromosome structure or number involve many genes and for the most part, the vast majority are not heritable. In contrast, a point mutation in a single gene occurring in a germ cell may be inherited, depending on whether or not that particular germ cell is involved in fertilization. If it is, the genotype of the resultant individual will carry the abnormality and all subsequent generations therefore have a finite risk of being similarly affected. With this type of simple, single factor, or Mendelian inheritance the proportion of offspring affected with a given genetic trait is predictable and follows the laws of probability. Four types of simple inheritance are recognized and will be considered individually:

(a) *Autosomal dominant*

With this type of inheritance, the defective gene is located on one of the autosomes, and only one mem-

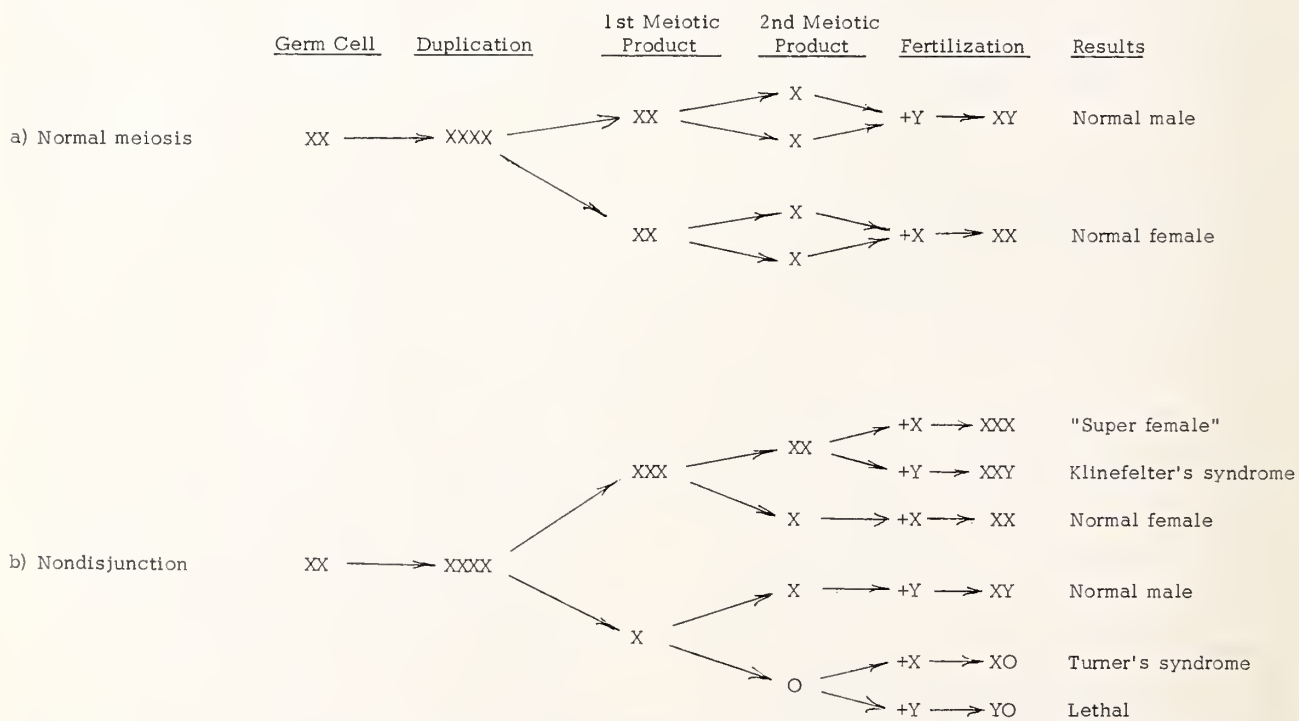


Figure 3. This figure depicts meiosis in a normal female and the consequences of one type of error in chromosome distribution during germ cell division. For simplicity, only the sex chromosomes are shown, although similar errors are possible with any of the autosomes as well.

TABLE 1

Autosomal Dominant	*Autosomal Recessives*	*X-Linked Disorders (mainly recessive)*
Achondroplasia	Adrenogenital syndrome	Agammaglobulinemia
Brachydactyly	Albinism	Aldrich syndrome
Ehlers-Danlos syndrome	Ataxia-telangiectasia	Amelogenesis imperfecta
Facioscapulohumeral muscular dystrophy	Congenital goiter with defects in thyroxine synthesis	Angiokeratoma diffusion of Fabry
Hereditary hemorrhagic telangiectasia	Cystic fibrosis	Anhidrotic ectodermal dysplasia
Hereditary spherocytosis	Cystinuria	Charcot-Marie-Tooth disease (in some families)
Holt-Oram syndrome	Ellis-vanCreveld syndrome	Color vision anomalies
Huntington's chorea	Fanconi syndrome	Diffuse cerebral sclerosis (Pelizaeus-Merzbacher)
Idiopathic cardiomyopathy	Friedreich's ataxia	Duchenne muscular dystrophy
Marfan's syndrome	Galactosemia	Glucose-6-phosphate dehydrogenase deficiency
Multiple endocrine adenomatosis	Gaucher's disease	Hemophilia A (AHF deficiency)
Multiple exostoses	Glycogen storage diseases	Hemophilia B (Christmas disease)
Multiple polyposis	Homocystinuria	Hydrocephalus secondary to stenosis of the aquaduct of Sylvius
Myotonic dystrophy	Laurence-Moon-Biedl syndrome	Hypoparathyroidism
Osteogenesis imperfecta	Limb-girdle muscular dystrophy	Lowe's oculo-cerebro-renal syndrome
Peutz-Jegher's syndrome	Maple syrup urine disease	Nephrogenic diabetes insipidus
Pheochromocytoma	Metachromatic leukodystrophy	Ocular albinism
Porphyria (acute intermittent type)	Mucopolysaccharidosis (Hurler's syndrome)	Retinitis pigmentosa (one type)
Retinoblastoma	Phenylketonuria	Spondylo-epiphyseal dysplasia tardiv
Spherocytosis	Tay-Sachs disease	Xg blood group
Tuberous sclerosis	Wilson's disease	

Table 1. This table lists a selected number of genetic diseases with their mode of inheritance.

ber of a pair of alleles is abnormal. In other words, a single "dose" of a defective dominant gene is sufficient to cause the disorder. As the normal and abnormal alleles segregate at meiosis, any offspring has a one in two or 50 per cent chance of having the same disorder as the affected parent, and males and females are affected in equal proportion. Examples of autosomal dominant disorders as well as other simply inherited diseases are shown in *Table I.* Another characteristic of autosomal dominant traits is that they may show considerable variability from patient to patient. In other words, there may be a significant difference in *phenotype* or external appearance between two individuals who both have the same genetic defect. Geneticists apply the term *expressivity* to this characteristic, and this word is in fact equivalent to a clinical grade of severity. Occasionally, an individual appears normal despite the fact that by genetic analysis of the family, he is known to carry a defective gene. In such cases, the gene is said to be *non-penetrant.* Penetrance is an all or none phenomenon related to the fact that the remainder of the genotype and the environment influence the expression of any given gene. After the genetic lesion is biochemically defined, a patient's genotype usually can be ascertained with more certainty despite the absence of any overt external manifestations of the defective gene.

(b) *Autosomal recessive*

Autosomal recessive inheritance implies that *both* autosomal alleles must be abnormal before an individual is affected with the disorder. In other words, he is a homozygote, and as each parent must have contributed one of the defective alleles, each is a heterozygote. Examples of autosomal recessive disorders include primarily defects in enzymes, such as phenylketonuria, galactosemia, homocystinuria, and the various glycogen storage diseases, all of which are due to inadequate or defective synthesis of enzymes as a consequence of an abnormal gene. For the most part,

heterozygotes for autosomal recessive disorders appear normal. However, biochemical analysis will often reveal that they have only 50 per cent of normal enzyme activity in contrast to the normal 100 per cent and the virtual absence of activity in their homozygous offspring. Under most circumstances, 50 per cent activity seems to be sufficient. However, with conditions of stress, such as administration of a phenylalanine load to a phenylketonuria heterozygote, the presence of the defective gene can be detected by the prolonged elevation of this amino acid in the serum. With autosomal recessive inheritance, males and females are again equally affected, but the pedigree pattern tends to be more "horizontal"; i.e., multiple sibs are often affected with parents and collateral relatives normal. The more rare the disorder the more likely consanguinity is to be found in the family history, as inbreeding increases the chance for homozygosity. Parents of a child affected with an autosomal recessive disorder have a one in four or 25 per cent chance of having another affected offspring.

(c) *X-Linked recessive*

This variety of inherited disorder occurs almost exclusively in males. A female who carries a defective gene in heterozygous state usually has few if any manifestations of a disease, whereas the male hemizygote will be clinically affected if he carries the defective gene because he has only one X chromosome. The *sine quo non* of X-linked inheritance is the absence of male to male transmission, since the male transmits to his son his Y chromosome. Occasionally females may be affected with overt X-linked recessive disease. Usually these girls have an affected father and a carrier mother and they are actually homozygous, although some females with X-linked muscular dystrophy or hemophilia have been reported who have an XO karyotype on further investigation. Heterozygous mothers or carriers have a 50 per cent chance of having affected male offspring. Obviously, the homozygous mother if capable of reproducing will have all of her sons affected, and all of her daughters will be carriers. On the other hand, the normal brother of a boy with classical hemophilia can be spared needless worry about the possibility of this X-linked disease in his offspring.

(d) *X-Linked dominant*

This type of pedigree pattern may be difficult to distinguish from autosomal dominance. However, male to male transmission is again absent, and numerically there are twice as many females affected as males. This is understandable when it is considered that affected females may transmit the defective X chromosome to either daughter or sons, whereas affected males transmit their X only to their daughters. Vitamin D-resistant rickets is a good example of an X-linked dominant disorder. It is generally true with this disease as well as other X-linked dominants, that males are more severely affected than their female counterparts, probably on the basis of the "inactive X" hypothesis.

Multifactorial Inheritance

Some traits are known to have at least a partial genetic component, but the inheritance pattern does follow predictable Mendelian lines. Normal features such as height and intelligence along with certain pathologic states such as peptic ulceration, essential hypertension, and most congenital malformations result from the operation of multiple factors. This means that hereditary and environmental influences are so intertwined that they cannot be easily separated. Occasionally, familial aggregation of multifactorial disease is impressive, but in general the risk of recurrence of any given disorder in subsequent children is far less than that for single factor inheritance. In order to adequately counsel parents of a child having a congenital malformation, for example, geneticists have recourse to *empiric risk* figures. These statistics simply represent the compilation, interpretation and application of large amounts of previous data concerning potential genetic factors important in pathogenesis. For example, the chance for a recurrence of cleft lip with or without cleft palate if no one else in the family is affected has been calculated to be less than 5 per cent or one chance in twenty. If a previous child or a parent had the affliction, then the recurrence risk is in the neighborhood of 10 per cent. If *both* a parent and a previous child or two earlier children were affected, the chance of a future child having a similar problem is approximately 15 per cent. Note that all these figures are less than the 25 per cent recurrence risk for autosomal recessive disorders, the least frequent type of single factor inheritance. If a large number of people are affected in the family or if the disorder has other congenital abnormalities as constant features, it is possible that the family in question suffers from a specific genetic entity or syndrome and not from a "garden variety" birth defect. In this case, the physician would do well to refer the family to the appropriate center for more comprehensive diagnostic evaluation.

The Diagnosis of Inherited Disease

It has been well-known among those interested in genetics that a single gene mutation may result in rather widespread involvement of many organ systems. The multiple, often apparently unrelated, effects of a single abnormal gene are known as *pleiotropic effects*. For example, the dislocated ocular lenses, arachnodactyly and cardiovascular lesions of the dominantly-inherited Marfan syndrome are all related to

each via a defect in connective tissue, the basic nature of which is presently unknown. Another example of the pleiotropic effects of a single gene is the Gardner syndrome, another dominantly inherited disorder comprising sebaceous cysts, osteomata and multiple colon polyposis. Here the defective gene acts through a completely unknown mechanism, affecting skin, bone and intestine. From a therapeutic point of view, it is important to recognize the peripheral manifestations of a defective gene as they are often clues to the diagnosis of more serious internal disease. The colon polyps in the Gardner syndrome are pre-malignant and correct diagnosis necessitates a total colectomy in the patient along with a comprehensive investigation of his family. A few of the many genetic disorders with serious internal manifestations recognizable by more benign associated physical findings are listed in *Table 2*.

In some cases the defective gene becomes clinically apparent because of secondarily altered physiology or biochemistry. For example, the gene defect in sickle cell anemia results in a single amino acid change in the beta chain of hemoglobin and is thus limited to one tissue, the erythropoietic system. However, patients homozygous for the sickle cell gene may present with bone or abdominal pain, bizarre heart murmurs and intestinal infarction as secondary consequences of the abnormal hemoglobin molecule. The defective hemoglobin gene has no direct relation to bones or the heart, but the resultant intravascular sickling and subsequent thrombosis obviously can affect these organs. Careful observation may reveal to the astute clinical observer such minor or secondary effects of a defective gene, thereby pointing the way toward a correct diagnosis. Moreover, a careful family history is of considerable value. Too often the family

TABLE 2

System	*Symptom*	*Associated Physical Signs*	*Diagnostic Consideration*	*Genetic Disease*
Cardiovascular	Heart failure	Malformation of upper extremities	ASD or VSD	Holt-Oram syndrome
	Vascular collapse	Arachnodactyly, dislocated lenses	Aortic aneurysm	Marfan syndrome
	Hypertension	Cafe-au-lait spots	Pheochromocytoma	Von Recklinghausen's disease
	Chest pain	Xanthomata	Myocardial infarction	Familial hypercholesterolemia
Gastrointestinal	Hemorrhage	Telangiectasia	Bowel telangiectasia	Familial hemorrhagic telangiectasia
	Intestinal obstruction	Pigmented spots on buccal mucosa	Small bowel polyp	Peutz-Jegher's syndrome
	Dysphagia	Hyperkeratosis of palms and soles	Esophageal cancer	Tylosis
	Abdominal pain	Photosensitivity, cutaneous scars	Porphyria	Acute intermittent porphyria
Neurological	Seizures	Adenoma sebaceum	Cerebral neoplasm	Tuberous sclerosis
	Ataxia	Retinal hemangioblastoma	Vascular malformations	Von Hippel-Lindau syndrome
	Hemiparesis	Loose joints, lax skin	Berry aneurysm	Ehlers-Danlos syndrome
	Retardation	Corneal opacity, contractures	Connective tissue abnormality	Hurler's syndrome
Genitourinary	Uremia	Palpable kidneys, hypertension	Polycystic kidneys	Polycystic kidney disease
	Amenorrhea	Webbed neck, short stature	Gonadal dysgenesis	Turner's syndrome
	Hematuria	Pathologic fractures	Renal calculi	Familial hyperparathyroidism
	Proteinuria	Rudimentary nails, absent patella	Glomerulonephritis	Nail-patella syndrome

Table 2. In this table are listed a number of disorders affecting various systems. The peripheral physical findings may be of extreme importance in the accurate recognition of serious internal disease.

history is dismissed with a "non-contributory" or a "negative" notation or frequently is not even considered. Yet, the presence of one or more of the multiple manifestations of a genetic disease in an immediate relative of the patient may be almost as significant as its presence in the patient himself.

The Importance of Genetic Disease

Clinicians often ask why they should be concerned with inherited disorders that are individually rare and, as such, make up only a small part of daily medical practice. While this appears to be true superficially, there are a number of cogent reasons why genetic disorders have a degree of importance far out of proportion to their numerical frequency. First of all, while simply inherited disorders are uncommon, they are often amenable to direct biochemical analysis. Using this approach, a great deal can be learned about normal biochemistry and physiology, and this knowledge can often be applied to acquired disease. As William Harvey emphasized more than 300 years ago ". . . in almost all things, what they contain of useful or applicable nature is hardly perceived unless we are deprived of them, or they become deranged in some way." As an example of this attitude, study of of the genetically determined inborn errors of metabolism such as the glycogen storage diseases, have opened the way toward a better understanding of carbohydrate degradation and synthesis.

Secondly, as pathogenetic factors are recognized, more effective therapy can be applied. Once it was discovered that the defect in phenylketonuric children was the virtual absence of the enzyme phenylalanine hydroxylase, the therapeutic approach was modified to include restriction of dietary phenylalanine. The adrenogenital syndrome results from an enzyme deficiency in the biosynthesis of cortisol. Simple replacement therapy causes regression of the excessive masculinization, and is quite literally life-saving in those infants suffering from the salt-losing variants of the disease.

Third, as inherited defects are better defined and the mode of inheritance determined, the genetically susceptible individual can be recognized, thereby allowing for more efficient application of preventive measures. Examples of this go back to antiquity and the ancient Jews. The Talmud makes indirect reference to hemophilia by giving dispensation for circumcision to the male children of women who had brothers or previous sons who were "bleeders." While not calling it such, they clearly recognized what we know today as the X-linked inheritance of hemophilia. The high risk family with one affected child with maple syrup urine disease, a recessively inherited inborn error of the branched-chain amino acids, leucine, isoleucine and valine, can be counseled accordingly, and if another child should be born, immediate steps can be taken to effectively treat the infant. The family of the individual with dominantly inherited premalignant multiple polyposis can be studied thoroughly and regularly followed with an eye toward preventing the development of malignant disease. The list of similar application of genetics to therapeutics is practically endless.

Finally, scrutiny of a genetic disease often reveals the presence of heterogeneity. What was formerly called gargoylism or Hurler's syndrome has been found on combined clinical, genetic, and biochemical analysis to be at least six distinct diseases of mucopolysaccharide metabolism, each with a somewhat different prognosis. The antibody deficiency syndromes formerly thought to affect only males (X-linked agammaglobulinemia) now are known to affect both males and females, children and adults, and to be widely disparate in terms of immunologic competence. An inborn error of metabolism, homocystinuria, closely simulates the Marfan syndrome. However, the former disorder is recessively inherited and has venous and arterial thrombosis as a prime pathologic feature while aortic dissection and valvular insufficiency are the hallmarks of the dominantly inherited Marfan syndrome. Obviously, recognition of heterogeneity here means the application of more appropriate therapy.

In other words, once a genetic disease is accurately identified, the basic defect can be attacked in a comprehensive clinical, biochemical and genetic manner. The presentation and clinical course of many defective genes is often quite predictable, and accumulation of information about specific defects will go far toward furthering our understanding of fundamental cellular processes.

Therapy in Genetic Disease

Genetic diseases by definition are chronic diseases, but unlike many chronic diseases, they do not necessarily carry a hopeless prognosis. Advances in the recognition of inherited disorders and application of modern therapeutics are being made almost daily, and some of these have been discussed in previous sections. In general, therapy of genetic disease has two facets: specific treatment aimed at the individual, and genetic counseling directed toward future generations. Paramount to either of these, of course, is accurate diagnosis.

It is a respectable generalization to state that most recessively inherited diseases result from enzyme defects while dominant disorders are the consequence of abnormalities in structure, or more correctly, structural proteins. Consequently, the therapeutic approach is different. With enzyme defects potentially useful

therapy is bidirectional; either the toxic metabolite prior to the block must be eliminated or the deficiency of some product distal to the enzyme defect must be remedied. Elimination of dietary lactose in galactosemia is an example of the former, while the administration of cortisol in the adrenogenital syndrome or thyroid hormone in the various defects of thyroid hormone synthesis illustrates the latter approach. In some cases, such as homocystinuria, which involves a block in the amino acid pathway from methionine to cystine, effective treatment may necessitate both methionine restriction and cystine supplementation. Addition of a co-factor such as pyridoxine (vitamin B_6) may be essential therapy as in cystathioninuria, another inborn error in sulfur-amino acid metabolism. In all these instances, elucidation of the exact gene defect has opened the way toward more effective therapy.

In contrast, little is known about the gene defects in most dominantly inherited disorders. Such entities as achondroplasia, retinoblastoma, myotonic dystrophy and spherocytosis have thus far resisted biochemical definition. The outlook is not hopeless, however, as the ocular tumors can be surgically removed in retinoblastoma without any reduction in life expectancy, and a splenectomy is virtually curative in hereditary spherocytosis. Then, too, many dominant disorders, while cosmetically unfortunate do not significantly effect longevity, and some of these also can be helped materially by plastic surgery.

It would be of appreciable value to society if detrimental genetic disease was eliminated or the incidence markedly reduced. At present there are no effective means of accomplishing this goal. Even if all patients with a rare recessive disease, such as phenylketonuria, were sterilized the frequency of the disorder would decrease less than 0.5 per cent in the next generation. With disorders of low frequency, this change is so slight as to be virtually insignificant. The reason for this is that most of the phenylketonuria genes are carried in heterozygous state; e.g., if the incidence of homozygous phenylketonuria is 1/10,000, then 1 in 50 persons is a carrier, clinically undetectable unless they already have an affected child. Once an affected child is recognized, of course, then the parents can be counseled accordingly; i.e., the risk for a subsequent affected child is one in four. Of course, figures like these are somewhat misleading. Evidence is now accumulating which suggests that treated phenylketonuric females who grew up to be "normal" may produce defective children, simply because the maternal intrauterine environment is unfavorable for normal fetal development. The high phenylalanine blood level which no longer causes problems in the mother appears to be quite detrimental to the developing fetus, despite the fact that the child is otherwise normal. If these observations remain valid (and experimental work with primates suggests that they will), a strong case could be made for sterilization of such potential mothers. However, such treated cases are at present rare, and it would seem to be more worthwhile to promote research toward better methods of detecting the heterozygote. It is not beyond the realm of possibility to imagine that in the future studies for heterozygosity in common genetic disorders will be performed on prospective marital partners as easily as a serology is today. Too often physicians are concerned only with therapy for the present. It is becoming quite apparent that society demands more in terms of future protection for themselves and for their progeny. Certainly, eugenics, or preventive genetics is a goal to which the physician-geneticist can usefully address himself.

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Curable Heart Disease

Congenital Heart Disease in the Adult

LYNN KINDRED, M.D., RAYMOND SCHWEGLER, M.D., DAVID M. PUGH, M.D., *and* MARVIN DUNN, M.D., *Kansas City, Kansas

ALTHOUGH MOST PATIENTS who have symptomatic heart disease in adult life have some form of acquired heart lesion, many patients with congenital lesions do not become symptomatic until they reach the later decades of life.[1] Historical data and physical findings are often atypical or confusing at this time. Often physicians are not disposed to include congenital lesions in their differential diagnosis of symptomatic heart disease occurring in an adult population. Since many of these problems can be corrected by an appropriate surgical procedure, the correct diagnosis is quite important.

Several patients who were seen at the University of Kansas Medical Center during the past year have been selected to illustrate the variety of congenital heart defects which may present in adult life. Diagnostic clues from the history and physical examination will be discussed. When applicable, the diagnostic features of the chest x-ray and electrocardiogram will be presented.

Case I

A 56-year-old white male was admitted complaining of shortness of breath and left-sided weakness which began acutely one week prior to admission. His shortness of breath had improved with digitalis therapy. A heart murmur was noted three years before admission, but the patient refused diagnostic studies at that time.

The blood pressure in the arms was 190/60 and in the legs 120/0. The lungs were clear. The cardiac apex was in the anterior axillary line in the sixth interspace. There was a loud third heart sound at the apex and a Grade II systolic ejection murmur was heard best at the pulmonic area. A late systolic murmur was heard in the left intrascapular area. The intercostal arteries were palpable over the back. There was motor weakness of the left arm, but no other neurologic deficit. The electrocardiogram *(Figure 1)* showed left ventricular hypertrophy with incomplete left bundle branch block which was confirmed by the vectorcardiogram. The chest x-ray *(Figure 2)* showed rib notching, left ventricular hypertrophy, and absence of descending aorta. The brain scan demonstrated an area of infarction in the right frontal-parietal area.

Although congenital heart defects comprise only a small percentage of heart defects seen in the adult population, it is important to establish an accurate diagnosis, since this represents potentially curable heart disease. Failure to consider congenital defects in the differential diagnosis is the main reason for a delayed or missed diagnosis.

This patient, who had a coarctation of the aorta, again refused further diagnostic studies or operation and left the hospital against medical advice. Coarcta-

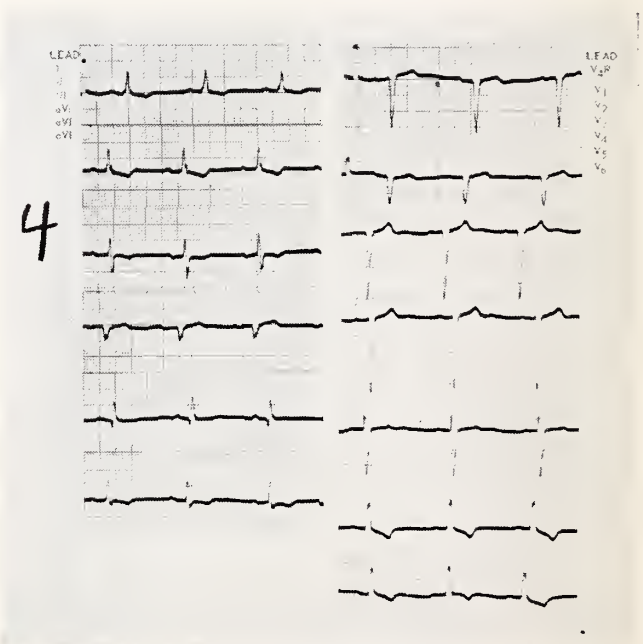


Figure 1. The electrocardiogram shows left ventricular hypertrophy and ischemia. It is characteristic of the electrocardiogram seen in patients with coarctation of the aorta.

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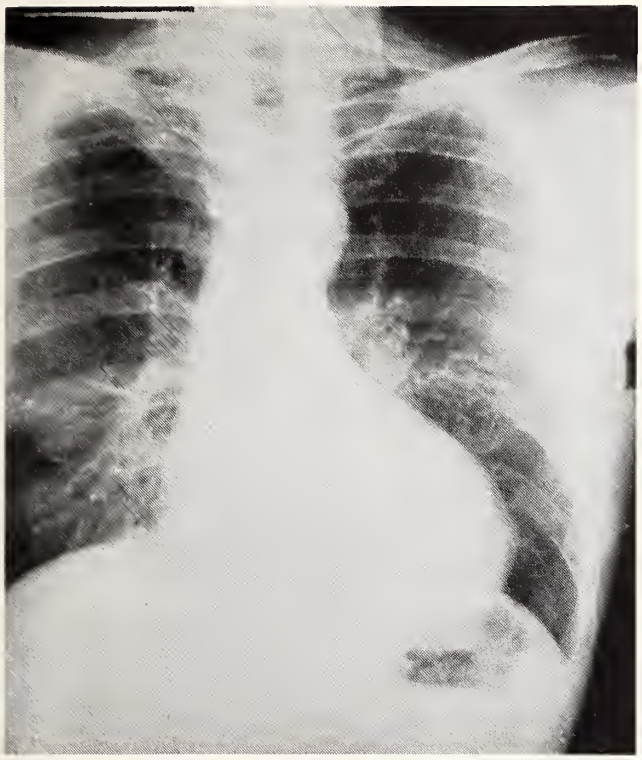


Figure 2. The chest x-ray shows an enlarged left ventricle. The normal shadow of the descending aorta is absent. Rib notching is not very conspicuous, but can be seen on the 4th and 5th ribs on the left.

tion is not a common finding in this age group but should be considered in all hypertensive patients.[2] Most patients with uncorrected coarctation die before this age due to cerebral hemorrhage, heart failure, or bacterial endocarditis.[3] The measurement of the blood pressure in the legs in all patients with systemic hypertension will suggest this diagnosis. The rib notching which is seen on the standard chest x-ray is also characteristic.

Case II

A 63-year-old white male was referred because of shortness of breath, exertional dyspnea and palpatations. These symptoms had been present for 20 years, but were becoming progressively more severe. He was retired and unable to work because of these symptoms. A heart murmur had been present since childhood. There was no history of rheumatic fever. A cardiac catheterization was done at another hospital.

His blood pressure was 170/110 and the pulse rate 100 with a respiratory rate of 32/min. There was no significant venous distension of the neck and the lungs were clear to auscultation and percussion. The cardiac apex was in the fifth intercostal space at the midclavicular line. There were no thrills or abnormal precordial movements. The first heart sound was normal, but the aortic and pulmonary components of the second sound had a fixed split of 0.08 seconds and the pulmonic component was accentuated. There was a third heart sound at the apex, as well as a short systolic ejection murmur at the pulmonic area. The liver was palpable five centimeters below the right costal margin and the spleen was palpable seven centimeters below the left costal margin. There was no clubbing of the fingers and only a trace of cyanosis.

The electrocardiogram *(Figure 3)* and vectorcardiogram both showed a complete right bundle branch block with first degree heart block. The chest x-ray *(Figure 4)* was very impressive with dilatation of the main pulmonary artery and calcification in the walls of the smaller pulmonary arteries.

This patient had an atrial septal defect with pulmonary hypertension and a remarkable degree of calcification of the pulmonary arteries, which was secondary to the pulmonary hypertension. The pulmonary hypertension increased the risk of surgical correction to such a degree that surgery was contraindicated.[1] Atrial septal defect is the most common congenital cardiac anomaly occurring in adults.[1] In the absence of pulmonary hypertension it is amenable to surgical correction.

The history of a heart murmur present since childhood, the pulmonary systolic ejection murmur, the wide fixed split of the aortic and pulmonary components of the second sound, and the large pulmonary artery seen on the chest x-ray are all clinical clues to the correct diagnosis. Most patients with atrial septal defects are asymptomatic. Fatigability is the

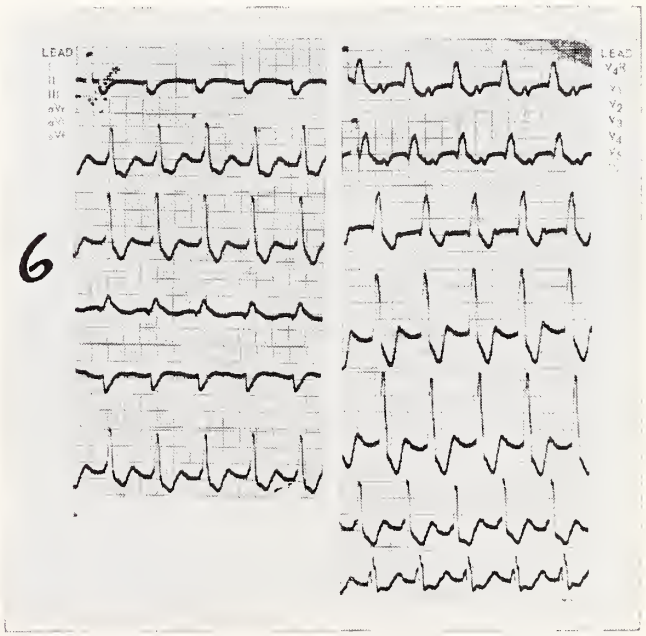


Figure 3. The electrocardiogram shows right ventricular hypertrophy and a marked first degree heart block. There is a qR configuration of the QRS complex in lead V_1. This frequently implies marked right atrial enlargement.



Figure 4. The chest x-ray shows marked cardiomegaly with massive enlargement of the main pulmonary artery segments. Calcification of the pulmonary arteries can be seen. When present, this implies pulmonary hypertension.

most common symptom but dyspnea develops as the compliance of the lung decreases. Approximately 20 per cent of adults with atrial septal defect will experience atrial arrhythmias such as paroxysmal atrial tachycardia. The sudden occurrence of this arrhythmia in an adult should suggest the possibility of an atrial septal defect. First degree heart block is also a common finding in adult patients with large left to right shunts.

Case III

A 60-year-old white female was referred because of a heart murmur which had been present for many years. She had been asymptomatic except for palpitations, but for several months prior to admission she had experienced exertional dyspnea, which did not prevent her from doing her housework. Her only medication was digitalis.

The blood pressure was 155/75 and the pulse 85 and regular. Her chest was clear and there was no venous distension of the neck. The cardiac apex was at the midclavicular line in the sixth interspace. There was a systolic thrill over the pulmonary area. The first heart sound was loud; the second heart sound was widely split and fixed, with accentuation of the pulmonic component. There was a Grade IV/VI systolic ejection murmur at the pulmonic area, a Grade III/VI short diastolic regurgitant murmur at the left sternal border, and a Grade III/VI mid-diastolic rumble at the apex. The liver and spleen were not enlarged, and the peripheral pulses were of good quality. There was no edema or cyanosis.

The electrocardiogram showed a complete right bundle branch block and first degree heart block *(Figure 5)*. The chest x-ray *(Figure 6)* showed enlargement of the main pulmonary artery which showed marked pulsatility when viewed fluoroscopically.

Heart catheterization data was diagnostic of an atrial septal defect and pulmonary stenosis. The gradient across the pulmonary valve was 60 mm Hg. The pulmonary to systemic flow ratio was 2.5 to 1.

The moderate degree of pulmonary stenosis protected her lungs from the excessive blood flow which would have occurred had the atrial septal defect existed alone. Although this patient had an operable defect, operation was deferred at her request but will be performed in the very near future since she has subsequently developed atrial fibrillation and heart failure. The diastolic rumble is due to increased flow across the tricuspid valve and is often mistaken for mitral stenosis. The diagnostic clues are the widely split second sound and the large pulmonary artery seen on the chest x-ray. The loud pulmonary component of the second sound is unusual with pulmonary stenosis.

Case IV

A 44-year-old white female entered because of fatigue and palpitations of several weeks' duration,

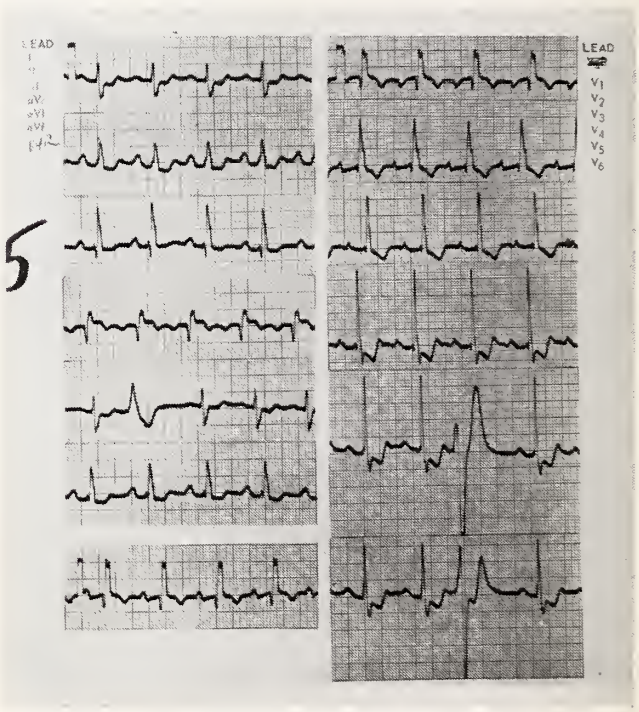


Figure 5. The electrocardiogram shows right ventricular and right atrial hypertrophy. There is a first degree block and an occasional supraventricular premature contraction.

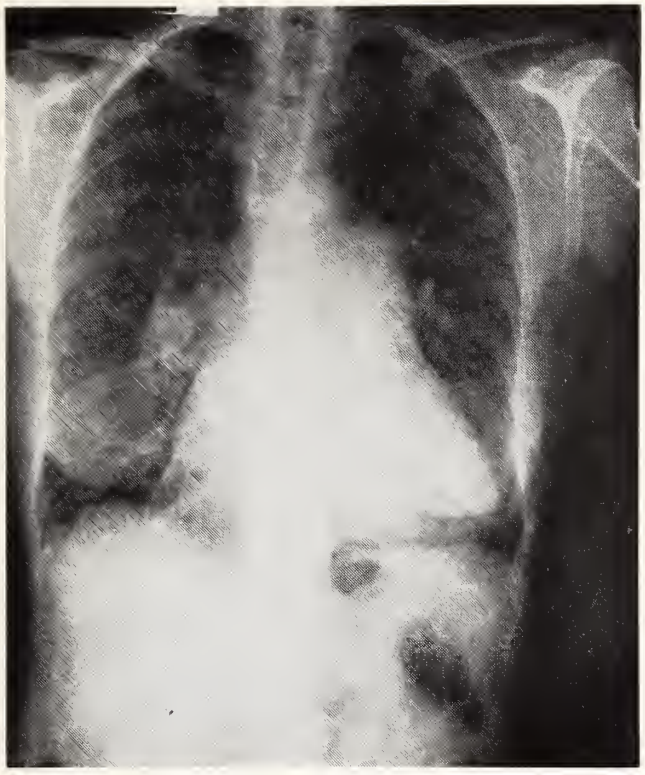


Figure 6. The chest x-ray shows an enlarged heart. The pulmonary arteries are particularly enlarged.

but was otherwise asymptomatic. A heart murmur had been present since childhood but she had been healthy all of her life.

The blood pressure was 154/78 and the pulse 68 and regular. There was no venous distension and the chest was clear. The heart size was normal. There was a systolic thrill at the pulmonic area. The first and second heart sounds were normal. There was a Grade IV/VI continuous murmur loudest at the third left interspace at the left sternal border with poor radiation to the back. The liver and spleen were normal. The pulses were bounding. The electrocardiogram and the chest x-ray were normal.

The cardiac catheterization data were compatible with a patent ductus arteriosus with a pulmonary to systemic blood flow of 1.5 to 1.

Continuous murmurs are most frequently due to patent ductus arteriosus, but may be due to other lesions such as A-V fistula and sinus of Valsalva aneurysms. Cardiac catheterization should be done prior to surgery to be certain that the diagnosis is correct. Patients with patent ductus arteriosus get into difficulty because of heart failure, pulmonary hypertension and bacterial endocarditis.[1] This patient was operated and did quite well. Postoperatively she has resumed normal activities and when last seen was asymptomatic.

Case V

A 68-year-old white male entered the hospital because of abdominal swelling. This patient had noted intermittent abdominal swelling for at least ten years associated with exertional dyspnea. There was no orthopnea, paroxysmal nocturnal dyspnea or chest pain. He had known of a heart murmur since age 19.

His blood pressure was 130/70 with a 20 mm Hg paradoxical pulse. He was chronically ill with marked ascites. There was prominent venous distension of the neck with no inspiratory collapse. The chest was clear. The cardiac apex was at the anterior axillary line in the fifth interspace. There was a systolic thrill at the fourth left interspace. The first sound was normal but the second sound was widely split with poor movement in inspiration. The pulmonary component was diminished. There was a loud third heart sound at the apex. There was a Grade IV/VI harsh prolonged systolic ejection murmur at the left sternal border and there was a Grade II/VI diastolic regurgitant murmur in the same area. There was no edema of the extremities. The peripheral pulses were poor.

The electrocardiogram *(Figure 7)* showed paroxysmal atrial tachycardia with block, right axis deviation and right ventricular hypertrophy. The chest x-ray *(Figure 8)* showed cardiac enlargement, an enlarged pulmonary artery, right ventricular enlargement and decreased vascular markings. Severe pulmonic stenosis with an 80 mm Hg gradient across the pulmonary valve but no evidence of an intracardiac shunt was demonstrated at cardiac catheterization.

This patient, despite his age, was considered an operative candidate and was scheduled for valvotomy. However, he later refused surgery and has not returned for follow-up. It is quite unusual for

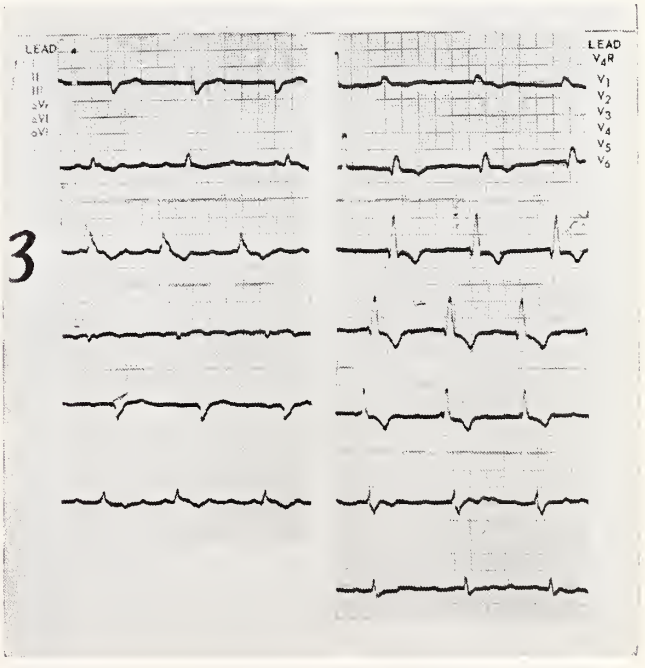


Figure 7. The electrocardiogram shows evidence of right ventricular hypertrophy. The rhythm disturbance is paroxysmal atrial tachycardia with block.



Figure 8. The chest x-ray shows an enlarged heart. The main pulmonary artery segment is also rather markedly enlarged. The peripheral lung fields have reduced vascularity. The enlarged main pulmonary artery segments and reduced peripheral vascularity are common findings in pulmonary stenosis.

patients with pulmonary stenosis to survive to the seventh decade. The large pulmonary artery seen on the x-ray is often mistaken for lung tumor. The murmurs were quite characteristic of pulmonary stenosis as was the split second sound.

Case VI

A 42-year-old white female was referred to this hospital from another geographic area. She had been known to have a heart murmur since birth, but had been well until age 29 when she developed bacterial endocarditis which recurred at age 39. At age 40 she developed blurred vision and numbness of the right side of her body which was attributed to a cerebral embolus. She had two uneventful pregnancies, but during her third at age 41 she required a half day of bed rest during the last five months. The delivery was normal.

The blood pressure was 120/70 and the pulse 72 and regular. She was well developed and in no distress. The chest was clear. The cardiac apex was in the fifth interspace just left of the midclavicular line. The first heart sound was normal and the second sound loud and single. A third and fourth sound were present. There was a Grade III continuous murmur at the pulmonary area which was audible over the back. The remainder of the examination was normal.

The electrocardiogram *(Figure 9)* showed right axis deviation and right ventricular hypertrophy. The chest x-ray *(Figure 10)* showed the heart to have an egg-shaped contour with a small main pulmonary artery and a large aorta.

This patient had had several catheterization studies before being seen at this hospital. The final diagnosis was pseudotruncus arteriosus which is frequently a form of tetralogy of Fallot. It is quite unusual for a patient with this defect to survive to adult life, but the three successful pregnancies are even more unusual. Since there is no main pulmonary artery, the blood supply to her lungs is maintained by a patent ductus or large bronchial arteries. She has tolerated her disease very well. Currently there is no surgery to correct or palliate this defect. Her medications include digitalis and anticoagulants, but she is leading an active and normal life.

Discussion

The majority of cardiac lesions affecting adults are acquired rather than congenital, but congenital lesions must be considered in the differential diagnosis of obscure heart disease. Over a ten-year period Fisher[2] found only 50 cases of congenital heart disease in 1,400 catheterizations performed in patients over the age of 40. Cooley[1] has recently reviewed 167 patients over the age of 35 with congenital heart disease upon whom he has operated. In decreasing order of frequency, this included atrial septal defect, coarctation of the aorta, ventricular septal defect, pulmonary stenosis, patent ductus arteriosus, tetralogy of Fallot, aortic stenosis, vascular ring, and total anomalous pulmonary venous drainage. The overall operative mortality was nine per cent. Age, pulmo-

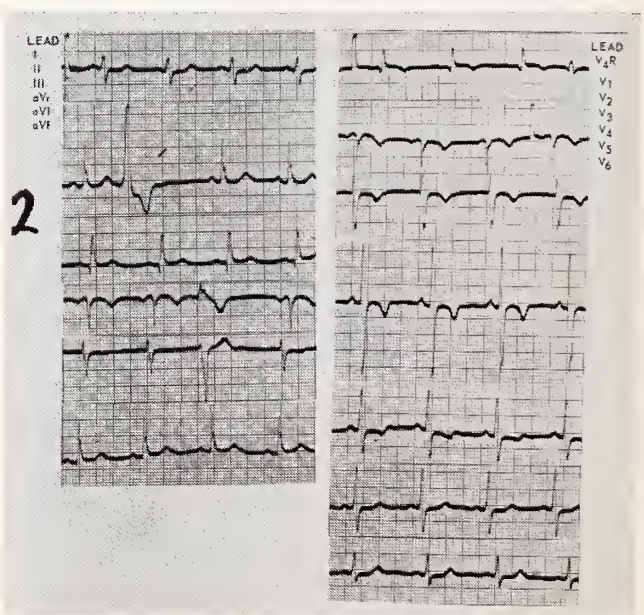


Figure 9. The electrocardiogram shows right ventricular hypertrophy. It is not diagnostic of any particular lesion.

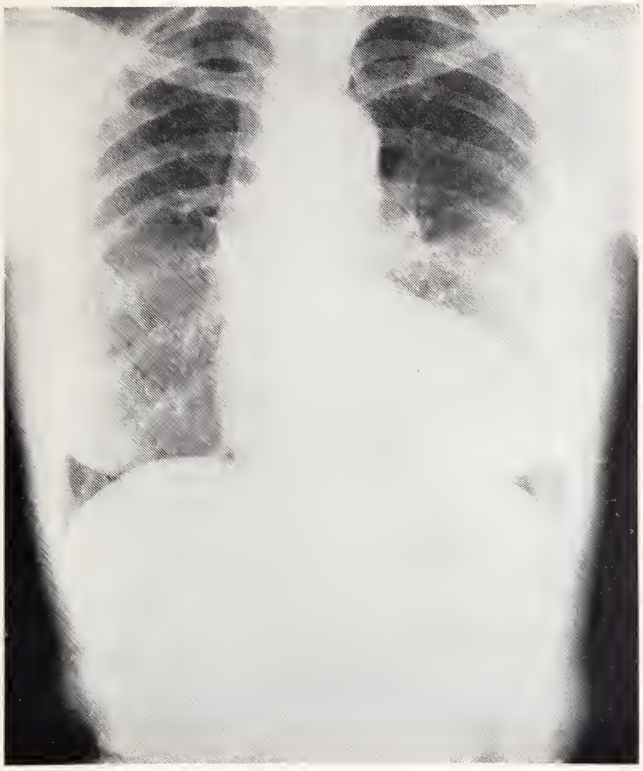


Figure 10. The chest x-ray shows an enlarged heart which has an egg-shaped appearance. The aorta appears dilated in its ascending portion and appears to be situated more in the midline than is usual. No main pulmonary segments can be seen. The vascularity of the peripheral lung fields appears normal.

nary hypertension, and congestive failure augured a poor prognosis. The principal hazard to surgical correction appears to be due to changes in the pulmonary vasculature which produce pulmonary hypertension. In general the mortality rate increases proportionately with the pulmonary resistance and very high pulmonary resistance is a contraindication to surgical correction of the defect.

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NEW SYNTEX PUBLICATION

The third volume in the series, "Leaders in Dermatology," has been published by Syntex Laboratories, Inc. It describes the life and works of George Henry Fox, M.D. (1846-1937), the first physician to use photographs to illustrate diseases of the skin. The biography is highlighted by color photographs and excerpts from the original 1879 edition of Fox's *Photographic Illustrations of Skin Diseases.*

Complimentary copies of the Fox biography will be distributed to dermatologists. The first copy was presented to Dr. Clarence S. Livingood, president of the American Academy of Dermatology. In 1876 Dr. Fox was one of the founders of the American Dermatological Association, a forerunner of the Academy. His son, Dr. Howard Fox, was a founder and the first president of the Academy itself in 1938.

A Civil War veteran, George Henry Fox graduated from the University of Pennsylvania School of Medicine in 1869. Many years later he attributed his attraction to dermatology to a remark made during his internship in Philadelphia. While demonstrating the problems inherent in diagnosing simple guttate psoriasis, an instructor commented that the diagnosis "might well exhaust the genius of Hebra," then a world famous Viennese professor of dermatology. So impressed was Fox that he devoted the next 50 years of his life to the study of skin diseases.

Before settling down to practice he went to Europe and studied in Leipsig, Berlin, Paris and, finally, in Vienna under Professor Hebra himself. Dr. Fox returned to his native New York in 1873 to practice medicine. Two years later he embarked upon a series of teaching assignments which quickly led to the position of Clinical Professor at the New York College of Physicians and Surgeons—a post he held for a quarter century. He resigned his chair there in 1907 for only one reason: to give Dr. George T. Jackson, his chief of clinic for 25 years, the opportunity to become his successor. According to the biography, "there have been few examples of comparable generosity in any field of academic endeavor."

Dr. Fox had become interested in medical photography early in his practice when an elderly patient with an epithelioma involving the whole lower lip presented such a striking appearance that Fox took him to a photographer and had a dozen card photographs made. He photographed other patients with other skin diseases and soon he had acquired a collection of photographs. Some of the best were published in the first edition of *Photographic Illustrations of Skin Diseases,* which boasted on its frontispiece, "Forty-eight plates from life, colored by hand."

Throughout his long career, Dr. Fox contributed more than photographs to medical literature. In 1902, for example, he and John A. Fordyce published an account of a rare papular disease affecting the axillary region of both male and female patients. So classic was their description that the authors became inseparable from the disease they described, and it became known as Fox-Fordyce disease.

Other volumes in the "Leaders of Dermatology" series were devoted to Noah Worcester and Louis Adolphus Duhring.



Student
THESIS

A Study of Familial Aggregation of Coronary Heart Disease

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Introduction

The National Health Survey found that of the 111.1 million adults in the U. S., 14.6 million of them had definite heart disease, and an additional 12.9 million had suspect heart disease. Hypertensive heart disease was most common with 9.5 per cent of adults age 18 to 79 followed by coronary heart disease at 2.8 per cent. Multiple diagnoses is possible in many cases; for example, those with hypertensive heart disease, 89 per cent would be considered to have heart disease in absence of hypertension. Also 56 per cent of those with coronary heart disease had co-existing hypertensive or other specific heart disease.

Age is a very significant factor as less than 2 per cent of those age 18 to 24 with definite disease compared to the majority of persons in the age group 75 to 79 with evidence of heart disease. The Framingham study showed that all new disease occurred after age 45 in women and 80 per cent after age 45 in men.

Gertler and White found that in 97 male patients with coronary heart disease before age 41 compared with 146 male controls that coronary artery disease was twice as common as the cause of death in fathers of patients as compared to controls. In 100 sibships there were eight with multiple cases of coronary disease. They summarized this as "these genealogies are interesting in that they fail to show a spectacular number of family members with coronary heart disease."

Thomas' and Cohen's report on 266 consecutive Johns Hopkins medical students showed that when both grandparents had coronary disease 21 per cent of their sons were affected, compared to four per cent if neither had coronary heart disease. When the fathers of the students were affected their siblings showed a frequency four times more than if no disease were present in the father.

There are conflicting results in twin studies as to the concordance rate for monozygotic or dizygotic twins, as well as siblings living in Boston with brothers in Ireland.

Shanoff has found coronary heart disease appears 20 years earlier in the sons than in the fathers. Ciocco has reported that spouses tend to die of similar diseases, whether this is due to sharing the same environment or associative mating is not known. Actually modest concentrations of disease in families have been found for most diseases for which they have been sought.

Epstein has pointed out the difficulties of studying familial factors in coronary heart disease. The population must be large and it is very difficult to diagnose pre-clinical disease. Estimated prevelance rate for clinical coronary heart disease is 5.5 per cent and represents only those on the surface as compared to a rate of 20 per cent as seen by the pathologist. Enos found in 300 soldiers with an average age of 22.1 that 77 per cent had gross evidence of coronary dis-

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Figgs is now an intern at the Good Samaritan Hospital, Phoenix, Arizona.

ease ranging from thickening to complete occlusion of main coronary branches.

The purpose of this paper is to determine the presence or absence of a familial aggregation of clinically manifest heart disease in a localized community where a large majority of the people are cared for by a single group of physicians and the diagnosis and treatment of the cardiac cases by a single physician.

Methods

Scott City Clinic provided the information utilized in this study. This clinic serves the majority of people in Scott County with medical care, and family relationships were determined with a high degree of accuracy. All ECG's in the clinic are interpreted by one physician, which provides a consistency of diagnoses not frequently found.

These ECG's were reviewed by two independent readers who agreed with only rare exception on the presence or absence of heart disease in all tracings. Approximately 20 per cent of the persons involved had master two step examinations, and over 50 per cent had serial tracings. By using these ECG's plus subsequent examination of hospital records in a few borderline cases, the subjects were classified as having definite heart disease, suspect heart disease or no heart disease.

Criteria as established by the National Health Survey served as the standard for comparison to determine the presence of heart disease. ECG criteria for hypertension and left ventricular hypertrophy were not included in our assessment of heart disease.

All persons with ECG's were then carefully studied to determine first degree relatives only, that is parent-child, sibling or spouse. These were then paired and the type of heart disease determined for each member as well as age, sex, and status as living or dead. In families with multiple relationships, a member was used more than once to determine all possible combinations. Persons less than 25 years old or older than 70 were eliminated because of rarity of disease in the former and probable frequent mis-diagnosis in the latter. A fourfold table was then constructed utilizing all pairs, then sub-dividing them into specific spouse-spouse, parent-child and sib-sib pairs. This was further broken down as to older vs. younger and male vs. female and Chi square analysis used to determine the significance. The identification of related persons was done by the three physicians in the community, the clinic business manager and the city clerk.

Findings

Examination of the Scott City Clinic records revealed ECG's on 608 persons between the ages of 25 and 70. There were 258 female and 350 males. Four hundred sixty-two of these were interpreted as normal, 123 as definite heart disease, and 23 with suspect heart disease. Those with suspect disease were subsequently included in the definite category before any calculations were done on the likelihood these represent disease and the small number of pairs involved did not affect calculations. The number of males, females, living or dead due to any cause and the average age of each group is shown in *Table 1.*

TABLE 1

NUMBER OF MALES, FEMALES AND RESPECTIVE AGE OF OUR SAMPLE

	Normal		*Definite*	
	NO.	AVE. AGE	NO.	AVE. AGE
	462		146	
Female				
Living	196	54	43	58
Dead	6	57	13	59
Total	202	54	56	58
Male				
Living	243	46	57	53
Dead	17	58	33	61
Total	260	47	90	56
Total individuals	608			

The population of Scott County in 1960 was 5,242. Of these, 2,550 were between the ages of 25 and 70. Our sample, therefore, represents 24 per cent of the population based on the 1960 survey, or if based on the 1966 population of 5,936, this would be about 21 per cent of the population. Taking prevalence rates determined by the National Health Survey for both definite hypertensive and coronary heart disease for each age group and comparing it to Scott County one would expect to find *226 cases of heart disease.* The number in our study would then represent approximately 65 per cent of the expected cases of heart disease in the county.

In our ECG diagnosis of definite heart disease we found the types shown in *Table 2.* The ECG group with suspect disease generally showed non-specific t-wave changes or s-t segment deviations.

Of the 608 persons 372 were not related and 236 had a first degree relative. Of these 236, 187 were normal and 49 had heart disease. Considering all possible pairs of related persons, we have 136 pairs. There were 14 families with more than two related persons. The distribution of spouse, sib, and parent-child pairs, according to normal "N" or diseased

TABLE 2

DIAGNOSES INCLUDED AS DEFINITE HEART DISEASE

Pathologic q waves	55
t-wave inversion	35
At. fib. and flutter	16
At. fib and t-wave inversion	6
LBBB	3
LBBB and t-wave inversion	2
RBBB and t-wave inversion	2
RBBB	1
Loss of qrs amplitude in precordial leads	2
Ventricular tachycardia	1
	123

"D" with the older member of the pair on the ordinate is shown in *Table 3.*

TABLE 3

DISTRIBUTION OF ALL RELATED PAIRS

	Older : Younger				
Pair Type	N : N	N : D	D : N	D : D	*Total*
Spouse	49	8	9	5	71
Sib-sib	15	5	2	4	26
Parent-child	19	1	15	4	39
Total	83	14	26	13	136

N = Normal
D = Diseased

The Chi square test for significance of all pairs as determined from the fourfold table for all pairs is shown in *Table 4* with the average age for each member of the cell.

TABLE 4

FOURFOLD TABLE FOR ALL RELATED PAIRS WITH AVERAGE AGES

Younger	*Older* D	*Older* N	*Total*	*Pair Type*	*Ave. Age*
D	13	14	27	D : D	63-51
N	26	83	109	D : N	61-44
				N : D	54-47
Total	39	97	136	N : N	53-43

$X^2_1 = 6.2424$

The Chi square here is 6.2424 which is highly significant ($.01 < p < .02$). To test for random distribution of all related pairs, *Table 5* was constructed.

TABLE 5

TEST OF RANDOM DISTRIBUTION OF ALL RELATED PAIRS

Pair Type	*Observed*	*Expected*	*(Obs-Exp)²/Exp*
N : N	83	78	0.320
N : D	40	50	2.000
D : D	13	8	3.125
Total	136	136	5.425

$X^2_1 = 5.425$ $(.02 > p > .01)$

This conclusively demonstrates that heart disease is not randomly distributed among relatives.

In an attempt to determine the group which would account for the significant difference, all male pairs were studied. This is shown in *Table 6.*

TABLE 6

DISTRIBUTION OF ALL MALE PAIRS

	Older : Younger				
Males	N : N	N : D	D : N	D : D	*Total*
Parent-child	11	0	5	2	18
Sib-sib	14	3	2	1	20
Total	25	3	7	3	38

Parent-child PAIR TYPE	AVE. AGE	*Sib-sib* PAIR TYPE	AVE. AGE
D : D	65-35	D : D	55-52
D : N	63-38	D : N	54-43
N : D	no sample	N : D	42-33
N : N	62-38	N : N	48-40

The fourfold table shown in *Table 7* for all male pairs was analyzed by Fisher's Exact Test due to the small frequencies in each cell. This gave a $X^2_1 = 1.864$ which is not significant at the 5 per cent level.

Using all sib-sib and parent-child pairs in a fourfold table we find a $X^2_1 = 2.65$ $(.10 > p > .05)$ which is not significant according to *Table 8.*

TABLE 7

FOURFOLD TABLE FOR ALL MALE PAIRS

Younger	*Older*		*Total*	*Older : Younger*
	D	N		
D	3	3	6	
N	7	25	32	$X^2_1 = 1.864$
Total ...	10	28	38	Fisher's Exact Test

Using *Table 3* for all parent-child and sib-sib pairs Chi square values of .205 and .100 were determined by Fisher's Exact Test and are not significant. This seems to indicate that male pairs, parent-child or sib-sib pairs are not responsible for the non-random distribution that was found in *Table 4*. Therefore the

TABLE 8

FOURFOLD TABLE FOR ALL SIB-SIB, PARENT-CHILD PAIRS

Younger	*Older*		*Total*	*Older vs. Younger*
	D	N		
D	8	6	14	
N	17	34	51	
Total ...	25	40	65	$X^2_1 = 2.65$

spouse pairs are considered further to ascertain any bias which could give a significant result. Looking first at male vs. female as shown in *Table 9* we see a Chi square value of 4.218 ($.05 > p > .02$) again

TABLE 9

FOURFOLD TABLE FOR SPOUSE PAIRS

Female	*Male*		*Total*	*Male : Female* PAIR TYPE	AVG. AGE
	D	N		D : D	63-60
D	5	3	8	D : N	51-48
N	14	49	63	N : D	65-63
Total ...	19	52	71	N : N	51-46

$X^2_1 = 4.218$

Yates' Correction

using Yates' Correction, indicating that this is greater than would be expected by chance.

Considering all spouses older vs. younger we arrive at *Table 10.*

It is noted that on rearrangement of the contingency table, the Chi-square value is 2.379 which is not significant ($.2 > p > .1$). This finding suggests that age plays a significant role.

TABLE 10

FOURFOLD TABLE FOR SPOUSE PAIRS

Younger	*Older*		*Total*	*Older vs. Younger* PAIR TYPE	AVG. AGE
	D	N		D : D	63-60
D	5	8	13	D : N	58-52
N	9	49	58	N : D	54-51
Total ...	14	57	71	N : N	51-46

$X^2_1 = 2.379$

Yates' Correction

Careful inspection of *Table 10* reveals that five younger diseased male and older normal female spouse pairs have been transferred to the upper right cell. Hence, this discrepancy between the number of males diseased as compared with the number of females constitutes a considerable component of the overall Chi-square value. In order to offset this bias factor of less heart disease at a younger age in females, one would have to have comparable age groups in all cells of the contingency table. This was not possible in the present study because of the relatively small numbers.

Despite the loss of significance when the age sex factors are taken into account, it is still highly probable that there is a tendency for heart disease to be aggregated in the spouse pairs. It is a reasonable assumption that the addition of the remainder of the population will, in the large majority of instances be normal and hence, have the general tendency to increase the overall significance of this association. This will be explained in more detail in the following discussion.

Muench points out that conclusions concerning lack of association valid for a total population cannot be drawn from that observed in a hospital or clinic population unless a representative sample of the normal population is included in the study. He presents a fourfold table on the association of hiatal hernia and achalasia:

		Achalasia	
		+	−
Hiatus hernia	+	1	9
	−	42	34

and notes that the relative risk of 0.9 becomes highly significant if one includes the general population and the table looks:

		Achalasia	
		+	−
Hiatus hernia	+	1	9
	−	42	3400

with a relative risk of 9.0. The inclusion of the general population, which we can assume is relatively free of heart disease, in our study would generally increase the significance of our results.

Age and awareness of heart disease in a family can account for some bias in these groups. Those sons of fathers with heart disease may tend to be checked sooner than others. In *Table 5* we have only two father-son pairs both with disease and an age differential of 30 years, and only five diseased fathers with normal sons. These are not large numbers.

It should be pointed out that the average age of our diseased population is only 58, and not at the upper limit of our sample, as shown in *Table 1*.

Looking at the age differences in the two groups D : D and N : N from *Tables 4, 6, 9*. we find a 10 to 12 year span between those normal and those with disease. This means that our results would probably become more meaningful if we were to follow this in the future.

Epstein asserts "It is suggested that the true extent of familial aggregation of coronary heart disease can only be estimated with assurance on the basis of long-term, rather than one time studies of families representative of the population at large."

Summary

An attempt was made to determine the presence or absence of a familial aggregation of heart disease. We can probably conclude that in Scott County heart disease is not randomly distributed and that aggregation exists for spouse pairs, but not sib or parent-child pairs. No attempt was made to clarify possible etiologic factors involved but it seems from the finding of spouse aggregation, that environment plays a more important role than hereditary factors. Follow up examinations of related persons at a future date would probably increase the aggregation in all pairs studied.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

MARK YOUR CALENDAR

109th Annual Session

of the

KANSAS MEDICAL SOCIETY

April 28-May 1, 1968

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Newsletter

THE MAJOR CAUSE of death in this country is coronary artery disease. It is estimated that myocardial infarction afflicts 750,000 Americans each year. The etiology of atherosclerosis is not known, but there can be no doubt that victims of this disease have large quantities of lipid deposited in the intima of their arteries. Atherosclerotic plaques have been analyzed and there is a marked increase in the content of total lipid as the plaque progresses from the early fatty streak to the lipid-laden necrotic late stage. The increase is primarily in cholesterol ester. Although feeding high cholesterol diets to animals produce atherosclerosis, there is no proof cholesterol per se causes atherosclerosis in humans.

The continuing 12-year prospective investigations in Framingham, Massachusetts, have indicated that an increased incidence of coronary artery disease is seen in individuals with an elevation of serum cholesterol (greater than 240 mg/100 ml), systolic blood pressure (greater than 180 mm Hg), cigarette consumption (one pack or more), and weight (greater than 110 per cent normal). Evidence is also available that a similar correlation exists between elevated plasma triglyceride levels and coronary artery disease.

Although correlation is not causation, most therapeutic regimens are directed toward lowering the plasma lipids. Drugs are now available which can reduce plasma lipids. However, we still have no evidence that lowering plasma lipid levels will decrease the mortality or morbidity from coronary artery disease. A multi-clinic cooperative study of the effectiveness of several hypocholesterolemic drugs to control coronary artery disease is in progress and is being sponsored by the National Heart Institute. Definitive results will take several years to obtain. Preliminary studies utilizing dietary manipulations to lower plasma lipids suggest this is a valid approach.

The plasma lipids are composed of free fatty acids, cholesterol and cholesterol esters, triglycerides (neutral fat), and phospholipids. All these lipids are insoluble in water and, therefore, are carried in plasma in loose association with proteins, forming a water soluble lipoprotein complex. Free fatty acids are bound to albumin, but the other lipids are complexed to globulins. These lipoproteins can be separated into several major classes depending upon their electrophoretic mobility (i.e., their migration on a paper strip in an electric field):

(1) chylomicrons—These particles are more than 90 per cent triglyceride, the remaining 10 per cent being composed of cholesterol, phospholipid, and protein. The triglyceride in these particles is of dietary origin and the particles are carried from the intestinal villi through the thoracic duct into the blood stream. Those dietary triglycerides with fatty acids less than 10-12 carbons in length are absorbed directly into the portal system rather than the thoracic duct. Chylomicrons are not normally present in the plasma after an overnight fast. The presence of chylomicrons in appreciable amounts gives the plasma the appearance of cream.

(2) α-lipoproteins—These lipoproteins have approximately 45 per cent protein, 27 per cent phospholipid, 20 per cent cholesterol, and 8 or less per cent triglyceride. Their density is between 1.063-1.21 gm/ml.

(3) β-lipoprotein—These lipoproteins contain approximately 47 per cent cholesterol, 21 per cent protein, 23 per cent phospholipid, and 9 or less per cent triglyceride. Their density is between 1.019-1.063.

(4) Preβ-lipoprotein—These lipoproteins contain 29 per cent cholesterol, 18 per cent phospholipid, 10 per cent protein, and approximately 52 per cent triglyceride. Their composition is quite variable in regard to the amount of triglyceride.

The latter three lipoproteins are thought to be only

of hepatic origin. Increased amounts of triglyceride of endogenous origin synthesized by the liver are transported in the plasma as preβ-lipoprotein and account for the turbidity of plasma when the level is elevated. As the triglyceride content of the β-lipoprotein increases, the protein solubilizing effect is decreased and the complex circulates as a particle which is large enough to reflect light. Therefore, a crude test for elevated triglyceride levels is to view the plasma with transmitted light. If it is turbid, the plasma triglyceride level is most likely elevated.

Hyperlipidemias in patients have now been successfully classified into distinct types (*New Eng. J. Med.* 276:148, 215, 1967) and the excellent review referenced above should be read by all for a better understanding of these important and common disorders. Based on the electrophoretic pattern of the serum lipoproteins, five types were separated.

Type	*Lipoprotein Pattern Abnormality*	*Previous-Clinical Classification*
I	Chylomicrons increased	Fat induced hyperlipemia
II	β-lipoproteins increased	Essential familial hypercholesterolemia
III	β-lipoproteins and preβ-lipoproteins increased	Carbohydrate induced hypertriglyceridemia with hypercholesterolemia
IV	Preβ-lipoproteins markedly increased	Carbohydrate induced hypertriglyceridemia without marked hypercholesterolemia
V	Chylomicrons, β-lipoproteins and preβ-lipoproteins increased.	Fat and carbohydrate induced hyperlipidemia

The use of drugs in treating these disorders will be discussed in the next issue.

* * *

All too often when prescribing an antacid, we consider the total neutralizing capacity, speed of neutralization, duration of action, and effect of the components of the preparation on the frequency and consistency of the patient's bowel movements, but most of us do not consider the sodium content. The latter may be of great consequence in patients on low salt diets for hypertension, congestive failure, or kidney disease, etc. The following list indicates the sodium content of some of the more commonly used antacid preparations.

Product	*Dosage Form*	*Sodium Content**
Aludrox	Suspension and tablet	13.5 mg/15 ml
Amphojel	Suspension and tablet	24.6 mg/15 ml
BiSoDol	Tablet and powder	471 mg/3 gm powder
Creamalin	Capsule, tablet and magma	9 mg/15 ml
Gelusil	Liquid and tablet	19.5 mg/15 ml
Maalox #1	Tablet	14 mg/15 ml
Maalox #2	Tablet	28 mg/15 ml
Riopan	Tablet or suspension	2.1 mg/15 ml
Rolaids	Tablet	53 mg/tablet
Titralac	Tablet and suspension	37 mg/15 ml
Tums	Tablet	2.7 mg/tablet

* Values taken from the Handbook of Non-Prescription Drugs, Am. Pharm. Assn.

The President's Message

DEAR DOCTOR:



At the recent AMA sponsored symposium on "Health Care of the Poor" in Chicago were representatives from many fields—HEW, OEO, USPH, universities, social services, foundations, and others. Even the far left Student Health Organization showed up.

It was sobering to sit in discussion groups and observe the intensity of emotions of many of these people. They are sincere, though frequently misinformed. Their cry is "something dramatic must be done." Few constructive ideas emerged. There is a swing toward more neighborhood health centers in urban areas, which are essentially extensions of present charity clinics with increased use of social service personnel. An innovation is group discussions with the recipients. The cost factors in such setups are completely ignored.

Health care of the poor is now the "in" thing in government and university circles. We must concern ourselves in these changes to help direct them along common sense lines.

Sincerely,

President



Editorial COMMENT

Social Security Amendments

H.R. 12080 contains numerous amendments to social security, including medicare. The bill passed both houses of Congress and most sections become operative as of January 1 this year. Among the changes of most interest to medicine are the following which are in effect at this time.

The social security tax base is raised from $6,600 to $7,800. Benefits for retired workers are increased at an average of 14½ per cent. For example, the minimum payment to the single beneficiary now on the rolls is raised from $82 to $94. A man and wife now retired will get $165 instead of $145 minimum. Liberalized also is the amount the beneficiary may earn before his social security payments are withdrawn.

The definition of blindness is changed to that of industrial blindness (central visual acuity of 20/200 or less). The prescribing, fitting, or changing of eyeglasses or examinations to determine the refractive state of the eyes are excluded for payment under Title XIX.

Non-routine services of podiatrists and physical therapists working under the direction of hospitals, physicians or health centers will be paid under Part B. Other practitioners, although some attempted to have their services written into the program, are not included. However, the Secretary of Health, Education and Welfare is directed to study the need for extending coverage under Part B to include the services of additional types of personnel who engage in the independent practice of furnishing health services and to report his recommendations to Congress before January 1, 1969.

A considerable effort by two senators to control drugs was denied, but the Secretary of HEW was directed to study and make proposals for establishing quality and cost standards for drugs and to recommend whether drugs should be added to Part B of Title XVIII. This report also shall be submitted to Congress before January 1, 1969.

There is now a new third possible billing procedure. In addition to accepting an assignment or the patient presenting a receipted bill, payment may be made when the patient presents an itemized bill.

The doctor no longer is required to certify the medical necessity for hospital admissions or for outpatient services. The patient is given an additional 60 days lifetime reserve of hospital benefits for which he pays the $20 daily coinsurance, to be available when he has exhausted his 90 days in a spell of illness. Benefits in a tuberculosis hospital are increased to equal those in general hospitals.

The services of radiologists and pathologists will be paid under Part B to hospitalized patients without deductibles or the payment of coinsurance. Outpatient care payments are transferred from Part A to Part B. The bill also authorizes payment for x-ray services under Part B in the patient's home or in a nursing home even though the patient does not fulfill the previous hospital admission required by Part A.

Enrollment periods for Part B have been changed from biennial to annual schedules from January 1 to March 31. Liberalized also is the provision relating to the state buying Part B in behalf of welfare recipients. Until now this could be done only for those who received cash benefits. The new law permits the state to buy-in for all Title XIX recipients.

Of particular interest is the following statement quoted from the social security document entitled "Summary of Provisions of H.R. 12080."

> The bill authorizes the Secretary to experiment with various methods of reimbursement to organizations and physicians under medicare, medicaid, and the child health programs which would provide incentives for limiting costs of the program while maintaining quality care. The experiments would involve only those physicians and organizations that volunteer to participate in such experiments. No experiments will be initiated until the Secretary obtains the advice and recommendations of specialists who are competent to evaluate the possibilities of securing productive results.

Members of the Kansas Medical Society are invited to submit suggestions which may be explored by committees, by the Council or the House of Delegates. In the firm belief that facts will support it, this Society holds that Kansas physicians are providing high

quality care at reasonable cost, that the Kansas Title XIX program is among the best in the nation, and that this state is among the leaders in adopting a federally operated program to preserve the patient-physician relationship, freedom for the patient to select his physician, and professional integrity for the doctor. Perhaps Kansas may now take a further pioneering step in experimenting with ways to improve these programs. This new bill offers the opportunity. It is hoped the physicians of this state will accept it as a challenge.

Community Health Centers

Social Security says 46 million Americans are poor or near poor. That is one of four from the entire population. The poor get sicker and the sick get poorer. Poverty is the third leading cause of death. The private sector of medicine has ignored this problem and is unable, because of manpower shortage and lack of desire, to cope with it in the future. The independent practitioner, and with him the private practice of medicine, is doomed. In its place will appear clinics located in poverty pockets, staffed by salaried personnel and financed through federal grants. The government has already begun. Not fewer than 175 federal agencies operate 1,000 health programs, many designed especially for the needy.

So said Sargent Shriver, Director of the U. S. Office of Economic Opportunity; Ellen Winston, Consultant to the Secretary of HEW, and others speaking at an AMA Conference on Health Care for the Poor, on December 15-16, 1967. And they said more.

They said there are 41 community health centers in operation through the OEO. Half the medical schools in the country are operating or have applied to operate such centers. Tufts Medical School, for example, has two in operation. One is in a Boston suburb and the other is in Bolivar County, Mississippi. Anyone who steps in the door is cared for. Hospitalization is reduced. People are served. They like it.

Only organized medicine is opposed. The Mississippi State Medical Association was angry in the beginning but now shows signs of cooperation. A few physicians volunteer their services and accept referrals. The state and county health departments remain aloof.

The OEO is here to stay, the conference was advised. Community health centers will be established in many places and in increasing numbers. They want them directed and staffed by medical schools. They request support of organized medicine and need the active participation of the individual doctors.

Planning for such health centers is left largely to the poor in the area. Only they know what they want and what they want they will get. The big failure of organized medicine, more significant than lack of health personnel, is that medicine has dictated the terms under which care will be given. Preference was shown those who can pay. The poor took what was left. Until now no one asked the poor what they needed, no one considered their personal self-respect, their pride or their desires.

Defeated in every attempt at expression they finally found their voice in Detroit, in Milwaukee, in Cleveland and in Watts. A committee from Watts told the OEO if a health center was built in their community they would burn it down, unless it was their center, planned and directed by themselves. So it shall be.

The above are excerpts from notes taken during the meeting. Later reflection produces more questions than answers. What will this Society and its members do when OEO health centers spring up in Kansas? Medical schools consider them teaching opportunities because they expand their clinic facilities. Should our school enter medical practice first in the largest cities and later in all sections of the state? How can professional services be provided at these centers except from the existing supply? Placing doctors in such centers may aid in the distribution of medical care. It will not increase the amount.

Is it true, as they claim, that clinic care under federal financing increases efficiency? Can they, as is stoutly insisted, operate these and still preserve for the patient his choice of physician? Can the Community Health Center, in fact, serve as an adjunct to private health care? Could this, under the umbrella of cooperation from the local medical profession, truly serve as a screening medium, a first aid station? Could this become an extension of health care?

These centers will arrive. They will take on the face of the community in which they are located. Organized medicine has two choices, accept them as they arrive or plan with the OEO and with the poor before they open. It seems this Society should begin at this time to consider this subject seriously and in depth. In a similar way the larger component societies might make independent studies of their area and could greatly contribute to the position this Society will take.

However the physician likes or dislikes the prospect, there is open for a short while the opportunity to plan with beneficiaries on how health services shall be provided. Results are, of course, unpredictable but this effort might become a new area of public service. What would happen if representatives of this Society, of the Medical School, of Public Health, of Public Welfare on the one side met with representatives of the poor and of the aged on the other side? What would happen?

ADDED ATTRACTION!

Kansas Medical Society **1968 Annual Meeting**

April 28-May 1, Topeka, Kansas



GASLIGHT PARTY

Where: Ramada Inn's beautiful ballroom

When: April 29, 1968—Annual Sports Banquet

Who: Doctors and their wives are invited

What: Relive those nostalgic days of the "Roaring Twenties" at this gala event with the flappers and outstanding Dixieland musicians direct from the Gaslight Club in Chicago.

TWO LIFETIME MEMBERSHIPS TO THE CLUB GIVEN TO LUCKY PHYSICIANS!

How: Make your reservations now!

Tickets—$17.50 each, includes sports fees, dinner and show.

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Tickets—$25.00, includes sports fees, and dinner and show for sportsman and wife.

Checks should be made payable to the Kansas Medical Golf Association and sent to the Kansas Medical Society, 315 West 4th Street, Topeka 66603.



Blue Shield

A Special Out-Patient Experiment

How many hospital admissions would be avoided if subscribers of Blue Cross-Blue Shield had comprehensive benefits covering the services of *physicians* outside the hospital?

Some physicians feel that the reduction in hospitalization would be significant. The underlying premise is that now subscribers insist on being hospitalized to get various diagnostic tests and treatments covered—and that physicians succumb to this pressure.

> Carried to its logical conclusion this premise says, in effect: "There are many people in the hospital who don't really need to be there. Their problems could be taken care of in the doctor's office just as well or better. They go to the hospital primarily because that's the only way to get the coverage under their Blue Cross-Blue Shield program."

No Exact Studies Available

Oddly enough, this question has apparently never been studied in a scientific experiment. As important as it is, one would think that many studies would have been undertaken during some thirty years of prepayment experience. Of course, much data have been gathered, but not in terms of an experimental group and a control group during the same period of time under similar conditions.

Blue Shield Plans Special Experiment

Blue Shield has requested approval by the State Department of Insurance to conduct a special experiment in Sedgwick County for a period of six months to one year to test the hypothesis that subscribers who have comprehensive out-patient benefits will not use as many hospital days as subscribers who don't.

The study has been planned by expert statisticians and actuaries.

1. An *experimental* group of 10,000 subscribers in Sedgwick County has been selected.

This group will be given comprehensive benefits for services in the physician's office.

2. A *control* group of 10,000 subscribers in Sedgwick County has also been selected.

This latter group will be similar in every respect to the experimental group except they will NOT have the out-patient benefits.

3. At the end of a sufficient period of time (between six months and a year) the hospital utilization of the experimental group will be compared to the utilization of the control group.

The statisticians say that in order to be significant there must be at least a 6 per cent reduction of hospital days in the experimental group. We think less than this amount would be considered a chance variation.

Why Sedgwick County?

Sedgwick County offers the best base for the selection of the subscribers in the experimental and control groups. It was necessary to have as many as 10,000 subscribers in each group in order to draw valid conclusions. These subscribers had to be essentially similar in all characteristics. Sedgwick County was the only populous area in the State which offered this number of group subscribers.

(Continued on page 31)

American Medical Association

Summary of Actions of the House of Delegates, 21st Clinical Convention, November 26-29, 1967, Houston, Texas

THERE WAS NO LACK of positive action in the Houston meeting, at which 238 out of 242 Delegates (98.3%) attended the final two sessions, dealing with 96 items of business, including 17 reports from the Board of Trustees; 20 from the four Standing Committees of the House; one special report each from the AMA-ERF and the Commission to Coordinate the Relationships of Medicine With Allied Health Professions and Services; and 57 resolutions from state medical societies or individual physicians.

Of those, the House adopted 43 without amendment; amended and adopted 22; referred 21; absorbed four into other adopted items; and rejected six.

Distinguished Service Award

Owen H. Wangensteen, M.D., director of the Department of Surgery at University Hospitals, Minneapolis, was named the winner of the 1968 Distinguished Service Award.

The award will be presented to Dr. Wangensteen at the Annual Convention in San Francisco in June, 1968.

Under a change in the Bylaws, this is the first time the award winner has been selected at the Clinical Convention. Previously he was selected and the award was made at the Annual Convention.

AMA-ERF Institute for Biomedical Research

In a special report on the AMA Education and Research Foundation, Charles L. Hudson, M.D., Immediate Past President of the AMA and President of the AMA-ERF, reported to the House that the Board of Directors of the AMA-ERF had "voted to endorse in principle the relocation of the Institute for Biomedical Research on, or contiguous to, the University of Chicago campus, and authorized the Executive Vice President, with appropriate other members of staff and the President and Secretary-Treasurer of the Foundation to negotiate a contract with the University of Chicago for consideration by the Board of Directors of the AMA-ERF."

The House approved the action of the Board of Directors of the AMA-ERF and endorsed "in principle" the relocation of the Institute "on or contiguous to the University of Chicago."

At the same time, the House requested the Board of the AMA-ERF "to present at each Clinical Convention a report on the projected budget of the Institute for Biomedical Research for the ensuing year and the amount of the projected contribution from the American Medical Association to the Institute during that period."

Medical Education

Several actions were taken relating to medical education.

One was adoption of the Board of Trustees' summary of the Report of the Commission on Research. Fifteen recommendations were contained in the Commission report, two of which were seen as practicularly significant.

Recommendation 12 encouraged research in the delivery of health care, "provided it is conducted under proper auspices and in accordance with sound research design and methodology." The House adopted it, with the understanding that such support "should not be interpreted to imply any criticism of the present studies of the delivery of health care." Present efforts are productive, but the medical profession "should not hesitate to make known its interest in continued studies to improve the methods and quality of health care delivery."

Recommendation 13 was addressed to correcting the imbalance between biomedical research and education caused by the "heavy but desirable federal support of research." It stated that "there should be allotted a greatly increased amount for operational expenses of medical schools, to be matched by those schools through private or local governmental sources."

Again the House concurred, stressing the fact that its approval of the recommendation changes the policy of the AMA with respect to federal support for medical education. The change results in "an honest recognition that federal financial support is now accepted by the American medical schools." However, in adopting the recommendation, the House "emphatically urges that a matching formula be used" to "encourage medical schools to retain their independence."

The House also adopted a resolution that the AMA, through its Council on Medical Education, "utilize all appropriate influences to restore teaching to its proper place of prominence in medical education" instead of giving the lion's share of attention, honors and contributions to research scientists; and adopted 12 guidelines for medical staffs in hospitals with intern and resident training programs.

Health Manpower

A report was adopted on the "Report of the National Advisory Commission on Health Manpower," which was submitted to President Johnson on November 20.

The report was necessarily brief, since there had not been time to study and evaluate the Commission report in any depth, but it pointed out that the Commission's approach to health care problems indicated recognition of the need for orderly procedures rather than harmful "crash" programs. The emphasis in most of the Commission report is to center responsibility on the professional groups best able to evaluate and plan in health areas, rather than on government and non-professionals.

The House adopted the preliminary report; voted to enlarge the AMA Committee on Health Manpower by four members to permit more careful and complete study in this area; and noted that copies of the complete Commission report will be sent to all Delegates and Alternates, requesting them to submit their comments to their constituent associations as soon as possible.

In addition, the House approved replacing the present AMA Commission to Coordinate the Relationships of Medicine With Allied Health Professions and Services with a new council of the Board of Trustees to be known as the Council on Allied Health Professions; and directed the Association to seek the establishment of a medically oriented federal Commission on Health Resources and Medical Manpower to assure properly balanced distribution of health personnel among government agencies, the armed forces and the civilian population.

Also with respect to health personnel, both professional and allied, the House asked that a report be made at the next meeting evaluating the foreign resident, intern and physician program; requested a study of the present professional liability implications in the use of allied medical personnel; and urged physicians to become acquainted with the programs of the American Association of Medical Assistants and to encourage their assistants to participate in its educational and certification programs.

Health Care

The House adopted a number of reports and resolutions relating to health care from the standpoint of the community and the individual patient.

One emphasizes that standards of medical care are set at the local level and calls attention to disturbing trends pointing to the possible establishment of medical care standards on a national basis.

Another commits the AMA to leadership in informing the public, the profession and other elements of the health care field as to practical means of moderating health care costs, the value of voluntary health insurance, expanding the medical manpower supply and improving the health care of the American people.

With respect to comprehensive planning of health facilities and services, the House urged state and local medical societies to emphasize a variety of activities to be undertaken in the area of over-all planning for governmental and private programs of health care, including "Continued effort by the medical profession to improve federal legislation in this area and to emphasize the importance of local control."

The House reaffirmed that the procurement, processing, distribution or use of human blood and other human tissue is a medical service and is not the selling of a commodity. The Board of Trustees and the state associations were urged to support legislative action at federal and state levels to implement this concept.

The use of monitoring, defibrillation and resuscitative equipment by registered nurses in cases of cardiac emergencies was supported, with provisions regarding the nurse's training and the procedures established by the hospital medical staff.

Alcoholism was identified as a complex disease and the House recognized that the medical components of this entity are medicine's responsibility.

Medicare and Medicaid

In regard to medicare, the House reaffirmed its support for direct billing under the federal program and adopted a resolution regarding the collection and public dissemination of figures on the administrative costs of medicare.

The House resolved that the AMA continue its efforts to provide for the implementation of Title 19 in a manner which recognizes "the physician's right to bill directly all patients, including Title 19 patients, and allows the physician or his patient to be reimbursed his usual, customary and reasonable fee for his professional services"; and that the Association actively seek changes in the law that will secure "equal and simultaneous application to all jurisdictions."

Other Legislative Matters

A resolution urging continuing opposition to S-2299, the Long drug bill, and a report detailing the current status of HR-12080, the Social Security Amendments of 1967, were adopted.

The House also adopted recommendations that the AMA arrange a meeting of state medical association representatives to plan regional conferences of physicians to discuss matters of special interest to state legislators; and that state associations invite key lawmakers to attend AMA conferences.

Also approved was a resolution that state associations establish active legislative task forces at the congressional district level to maintain an effective working relationship with congressmen.

Support for AMPAC was reaffirmed in a resolution that requested the Board of Trustees to seek additional ways of helping AMPAC enlarge its activities and its assistance to state medical political action committees.

Hospitals

Because both medicare and medicaid provide payment for medical care rendered to patients by residents, the House resolved that the Association should study the problem and develop guidelines that are acceptable to supervising physicians, teaching institutions and government agencies involved in the payment process.

In addition, with respect to hospitals, the House adopted resolutions:

—Proposing the acceptance of physicians on hospital Boards of Trustees as the most effective form of liaison between the medical staff and hospital governing authorities.

—Protecting hospital privileges through "due process."

—Calling for more effective liaison and better coordination between medical staffs and local medical societies.

—Pointing out the need for simplifying attendance requirements for maintaining membership on hospital medical staffs.

—Pressing for prompt revision of the JCAH ruling on the use of externs in non-university affiliated hospitals, with the incorporation of adequate safeguards to insure the quality of programs of extern education.

In addition, model articles of incorporation for hospital medical staffs were made available for distribution in response to requests.

AMA Organization and Procedures

A number of changes were made in the Bylaws:

—Chapter XIV, Section 3(D) was updated, providing that four trustees will be elected annually, each for a three-year term and each limited to three terms.

—The terms in office of the President, President-Elect and Vice President all will begin and end at the close of the final session of the House of Delegates at the Annual Convention.

—Resolutions must be introduced to the House by a voting delegate.

—Nominations for Affiliate Membership in the AMA in classes (3), (4), (5) and (6) must be approved by the appropriate county and state medical society.

—A general officer's position is to be considered vacant if he misses six consecutive regular meetings of the Board.

—The House approved giving the Vice President voting rights on the Board.

Convention Sites

Sites and dates for future conventions will be:

	Annual	*Clinical*
1968	San Francisco, June 16-20	Miami Beach, Dec. 1-4
1969	New York, July 13-17	Denver, Nov. 30-Dec. 3
1970	Chicago, June 21-25	Boston, Nov. 29-Dec. 2
1971	Atlantic City, June 20-24	New Orleans, Nov. 28-Dec. 1
1972	San Francisco, June 18-22	Atlanta, Nov. 26-29
1973	New York, July 15-19	Anaheim, Cal., Nov. 25-28
1974	Chicago, June 16-20	Portland, Ore., Dec. 1-4

AMA Objectives

The House adopted a statement of 11 purposes and responsibilities for the AMA, designed to define more clearly the over-all purpose as written in the Constitution: "To promote the science and art of medicine and the betterment of public health."

The entire statement follows:

The Purposes and Responsibilities of the American Medical Association

It is the responsibility of the American Medical Association, as the representative of the American medical profession, to continue to foster the advancement of medical science and the health of the American people.

Its continuing purposes are to meet this responsibility through the following means:

1. By encouraging the further development of medical knowledge, skills, techniques and drugs; and by

maintaining the highest standards of practice and health care.

2. By creating incentives to attract increasing numbers of capable people into medicine and the other health-care professions.

3. By advancing and expanding the education of physicians and other groups in the health-care field.

4. By motivating skilled physicians who have the art of teaching to apply themselves to developing new generations of excellent practitioners.

5. By fostering programs that will encourage medical and health personnel to serve voluntarily in the areas of need for medical care.

6. By developing techniques and practices that will moderate the costs of good medical and health care.

7. By seeking out and fostering means of making all health-care facilities—physicians' offices, hospitals, laboratories, clinics and others—as efficient and economical as good medical practice and attention to human values will permit.

8. By combining the utilization of the latest knowledge for prevention and treatment with the vital healing force of the physician's personal knowledge of and devoting to his patient.

9. By maintaining the impetus of dedicated men and women in providing excellent health care by preserving the incentives and effectiveness of unshackled medical practice.

10. By maintaining the highest level of ethics and professional standards among all members of the medical profession.

11. By continuing to provide leadership and guidance to the medical profession of the world in meeting the health needs of changing populations.

Additional Actions

A memorial to Percy E. Hopkins, M.D., was read to the House and a copy was sent to Dr. Hopkins' widow. Dr. Hopkins served as a Trustee for seven years, the last four as its Chairman. He also served for eight years as a Delegate from Illinois.

The House reiterated its serious concern with respect to the Blue Cross Association's request for government funds for its research project on group practice.

Criteria for the evaluation of medical programs of national voluntary health agencies were adopted.

Three resolutions, referred to the Board, pointed out that many news stories criticizing the rising cost of health care place all or most of the responsibility squarely on physicians. As one of the resolutions put it, "Statistical reports relating to health care costs are misleading when they are referred to . . . as medical care costs; and . . . the improper labeling . . . may actually delay proper analysis of the several components."

J. C. Mitchell, M.D.
L. R. Pyle, M.D.
Delegates From Kansas

Blue Shield

(Continued from page 27)

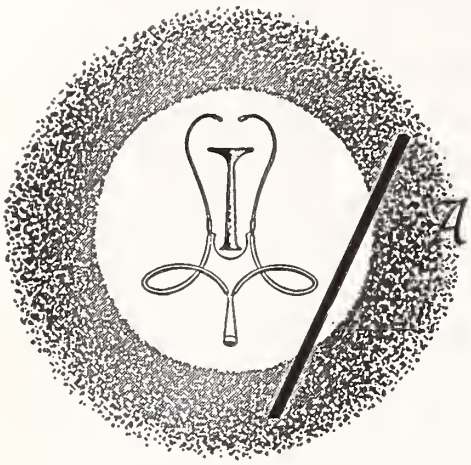
Scope of Benefits

In general terms, the special benefits will include almost all services performed by physicians in their offices. These benefits will include written consultations; laboratory services wherever performed; physical therapy in the physician's office, the hospital out-patient department, the therapist's office or the patient's home; inhalation therapy in the physician's office or the hospital out-patient department; drugs that cannot be self-administered; the administration of blood and blood products; psychiatric services and services in the hospital out-patient department. Of course, the experimental benefits will not include any services which present Blue Cross-Blue Shield subscribers already have in their basic contracts since these are already covered. Also, both groups will have x-ray coverage under the rider.

The following services will be excluded: allergy shots; routine insulin therapy; dermatitis treatments; obstetrical care; well adult and child examinations; nursing home visits; routine eye examination; routine immunizations; dental services; blood and blood products; and drugs that can be self-administered.

While the experimental benefits will be offered only to groups in Sedgwick County, it is quite likely that some of these subscribers will seek services of physicians outside of Sedgwick County. Blue Shield will pay physicians in other counties on the same basis as physicians in Sedgwick County—that is, their reasonable and customary charges for the services. At a later date all physicians will be told specifically how to identify subscribers who have the special experimental benefits. It is expected that the experiment will begin on February 1, 1968.

The American Cancer Society has launched a new series of films, as part of its expanding program of professional education. Oral cancer, nursing cancer patients, diagnosing and managing colon-rectum cancer, are a few of the subjects presented in these new color films. For more information and arrangements for showings, call your local ACS office.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

FEBRUARY

Feb. 1-3 — Fifth International Conference, Association for Children with Learning Disabilities, Inc. Sheraton-Boston and Statler-Hilton Hotels, Boston, Massachusetts.

Feb. 3 — American College of Physicians (Nebraska Regional), Lincoln. Write Henry J. Lehnhoff, Jr., M.D., 720 Doctors' Building, Omaha 68131.

Feb. 19-21 — American College of Surgeons (Sectional Meeting), Statler-Hilton Hotel, Dallas. Write Communications Department, American College of Surgeons, 55 E. Erie Street, Chicago 60611.

Feb. 23 — **American College of Physicians (Kansas Regional), Topeka. Write Sloan J. Wilson, M.D., University of Kansas Medical Center, Kansas City, Kansas 66103.**

Feb. 22-24 — American Academy of Forensic Sciences, Drake Hotel, Chicago. Write S. R. Gerber, M.D., 2153 Adelbert Road, Cleveland 44106.

MARCH

Mar. 15-16 — AMA Council on Mental Health, *Drug Abuse and the Now Generation,* Drake Hotel, Chicago. Write Department of Mental Health, American Medical Association, 535 N. Dearborn, Chicago 60610.

Mar. 15-20 — Second International Congress of Lymphology, Fontainebleu Hotel, Miami Beach. Write Manuel Viamonte, Jr., M.D., University of Miami School of Medicine, 1450 N. W. 11th Avenue, Miami 33136.

Mar. 18 — **AMA lecture on Clinical Nutrition presented by Jack Metcoff, M.D., Kansas State College of Pittsburg, Pittsburg, Kansas.**

Mar. 22-23 — **20th Annual Midwest Cancer Conference, Kansas Division, American Cancer Society, Broadview Hotel, Wichita.**

Mar. 22-23 — Congress on Socio-Economics of Health Care, sponsored by the Council on Medical Service and Division on Socio-Economic Activities of the AMA. Palmer House, Chicago.

POSTGRADUATE COURSES

University of Colorado:

Feb. 5-9 — *High Risk Infant Care*

Feb. 20-23 — *Surgery of the Hand*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver 80220.

University of Kansas:

Feb. 14 — *The Mentally Handicapped Child (Great Bend, Kansas)*

Feb. 19-20 — *Natural History of Congenital and Rheumatic Heart Disease*

Mar. 11-13 — *Pediatrics*

Mar. 18-20 — *Otorhinolaryngology*

Mar. 25-27 — *Surgery*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, 39th and Rainbow Boulevard, Kansas City, Kansas 66103.

(Continued on page 36)



Book REVIEWS

ATLAS OF CRYOSURGICAL TECHNIQUES IN OPHTHALMOLOGY by Charles D. Kelman. The C. V. Mosby Company, St. Louis. 177 pages illustrated. $18.75.

It is probable that most experienced ophthalmic surgeons have believed that little more than instruction on how to operate the lately developed cryosurgical instruments was needed to successfully incorporate the new modality into their own surgical techniques. The study of this first atlas on the subject of ophthalmic cryosurgical techniques should serve to change this belief. The study will also serve to increase the understanding and skills of any eye surgeon desirous of using this new tool.

From his extensive personal experience the author has produced a detailed description of cryosurgical techniques for every type of cataract extraction with detailed and beautiful illustrations to add to the readers understanding of nearly every major point made in the text. The emphasis of this volume is upon the use of the cryostylet in cataract surgery, thus 75 per cent of the book is devoted to this aspect. The remaining 25 per cent covers in more general terms and less detail what was known at the time of publication regarding the use of cold in retinal detachment, glaucoma and tumors of the eye.

The detail of the discussion of cataract extraction is illustrated by a list of the procedures described. This is as follows: routine lens extraction, extraction of the hypermature lens, extraction of the lens with torn capsule, extraction of the luxated lens, extracapsular lens extraction and combined cryoextraction of the lens and corneal transplant.

For each technique described, Dr. Kelman carefully explains and illustrates the peculiar attributes of the freezing method as well as its limitations and dangers and how to avoid the latter. Although the descriptions are applicable for use with any of the cryophakes available the author presents clear and practical reasons for instrument characteristics that he believes necessary in each procedure.

Use of cryosurgery for retinal separation is presented in general terms giving valuable fundamental information on theory and tips on application, but without any attempt to discuss specific techniques. This subject indeed could already fill a subsequent volume.

In summary this book is all that a good atlas should be and one that any ophthalmic surgeon would benefit from reading whether he is experienced or a neophyte and whether or not he chooses to use the cryosurgical techniques.—*J.T.R.*

DISORDERS OF THE RESPIRATORY TRACT IN CHILDREN by Edwin L. Kendig, Jr. W. B. Saunders Company, Philadelphia, 1967. 834 pages illustrated. $26.00.

One often wonders about the need for another medical book or text. I certainly had such speculations as I began this book. Is it really necessary to write another 800 pages about the disorders of the respiratory tract in children?

After reading this book, I feel that it definitely will be helpful to the physician who treats children. Although this material is available in other standard publications, I doubt that the busy practitioner would find as thorough a discussion. He would need several texts (Physiology, Anatomy, ENT, Pediatrics, etc.) to gather such an extensive and comprehensive presentation on a subject.

Most of the material presented is done in a standard format such as definition, etiology, clinical picture, laboratory findings, etc. The material is written in a very readable way and certainly the management and treatment as outlined is practical. An example of the practical is the excellent discussion on postural drainage. Too often in medical writing when a

method of management is mentioned, the reader is left to his own devices to work out or carry out the procedure. Here, considerable is written about how the patient should be positioned, manipulated, etc.

The editor apparently conveyed to most of the contributors the need for practical discussions with the explanations set on firm anatomic and physiologic grounds.

The text completely covers the gamut of the diseases that involve the respiratory system. At times this coverage, such as pneumonia complicating chicken pox and measles, may be too lengthy but still could be useful to some readers.

The portions on tuberculosis are thorough, interesting and enlightening, but this is no surprise since Dr. Kendig, the editor, is an authority on this disease.

This is a well written book with a wealth of material on the stated subject which should be valuable to the practicing doctor who sees many children. I'm sure it would prove helpful in handling any of the disorders of the respiratory tract.—*H.P.J.*

SEARLE ANNOUNCES NEW DIRECTOR OF DEPARTMENT OF PROFESSIONAL EDUCATION

Daniel C. Searle, president of G. D. Searle & Co., has announced the appointment of Samuel N. Turiel as Director of the newly created Department of Professional Education. Mr. Turiel's responsibilities will include the development of a graduate medical education program for Searle.

The department will develop a nucleus of physicians and other scientists to serve as both an educational advisory board, as well as an available faculty for symposia and continuing medical education programs in wide range of specified diagnostic and therapeutic areas of medicine. These special programs and symposia will eventually become available for use by directors of medical education at hospitals throughout the country in addition to interested medical societies. In addition, independent symposia will be presented as the need arises. Some of the specified special interest areas include the new and rapidly developing field of nuclear medicine, endocrinology, gastro-enterology, office laboratory and diagnostic procedures.

Mr. Turiel has for the past 20 years served with a wide range of medical and scientific associations including the American College of Chest Physicians, Society of Nuclear Medicine, American Association of Neurological Surgeons and the Association of Hospital Directors of Medical Education. He founded and published *The Journal of Nuclear Medicine* and *Animal Hospital*.

Mr. Turiel is a member of many professional organizations including the American Medical Writers Association, the National Association of Science Writers, Conference of Medical Society Executives of Greater Chicago (past president), Pharmaceutical Advertising Club, American Association of Medical Society Executives, American Society of Association Executives and the American Management Association.

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

Dolores A. Buchler, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Ronald M. Lauer, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

James D. Maxwell, M.D.
841 N. Broadway
Wichita, Kansas 67214

J. Scott Morrison, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Rolando A. Rodriguez, M.D.
P.O. Box 500
Osawatomie, Kansas 66064

Eugene P. Southall, Jr., M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Elsie E. Steelberg, M.D.
1128 S. Clifton
Wichita, Kansas 67218

William S. Tihen, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

William B. Toalson, M.D.
7301 Mission Road
Shawnee Mission, Kansas 66208

James R. White, M.D.
7345 Leavenworth Road
Kansas City, Kansas 66109

Kenneth C. Wiebe, M.D.
7301 Mission Road
Shawnee Mission, Kansas 66208

George R. Wurster, M.D.
9500 Mission Road, Suite 203
Overland Park, Kansas 66206

CHANGES OF ADDRESS

Members of the Kansas Medical Society will receive the JOURNAL and correspondence from the Executive Office promptly only if correct addresses are on file. Report changes to Kansas Medical Society, 315 West Fourth Street, Topeka, Kansas 66603.



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

Baker, Roger Denio. Postmortem examination; specific methods and procedures. Saunders, 1967.

Beck, Aaron T. Depression; clinical, experimental, and theoretical aspects. Hoeber Medical Div., Harper & Row, 1967.

Bogaert, Ludo van. Spongy degeneration of the brain in infancy. Thomas, 1967.

Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research, London. Ciba Foundation Symposium: Drug responses in man. Little, Brown, 1967.

Commissie voor Beentumoren. Radiological atlas of bone tumours. Williams & Wilkins, 1966.

Crile, George. A biological consideration of treatment of breast cancer. Thomas, 1967.

Crome, Leonard. The pathology of mental retardation, by L. Crome and J. Stern. Little, Brown, 1967.

Dalen, James E. Diagnosis and management of massive pulmonary embolism. Year Book, 1967.

Dalton, Albert Joseph. Ultrastructure of the kidney. Academic Press, 1967.

Dublin, William Brooks. Fundamentals of neuropathology. 2d ed. Thomas, 1967.

Ellis, Franklin Henry. Surgery for acquired mitral valve disease. Saunders, 1967.

Feldman, Stanley. Principles of resuscitation. F. A. Davis, 1967.

Filley, Giles Franklin. Pulmonary insufficiency and respiratory failure. Lea & Febiger, 1967.

Fox, Ruth. Alcoholism; behavioral research, therapeutic approaches. Springer, 1967.

Fripp, Alfred T. Club-foot. Williams & Wilkins, 1967.

Goldring, David. The camp physician's manual. Thomas, 1967.

John, E. Roy. Mechanisms of memory. Academic Press, 1967.

Kelly, G. Lombard. A doctor discusses menopause. Budlong Press, 1967.

Kiser, William S. When is transplantation of organs feasible or practical? Year Book, 1967.

Lambert, Camille Jr. The clinic habit. College & University Press, 1967.

Lynch, Henry T. Hereditary factors in carcinoma. Springer-Verlag, 1967.

Mahrer, Alvin R., Editor. The goals of psychotherapy. Appleton-Century-Crofts, 1967.

Martin, James Purdon. The basal ganglia and posture. Lippincott, 1967.

Meyer, Seymour William. Functional bandaging, including splints and protective dressings. American Elsevier Pub. Co., 1967.

Roberts, Sam Earl. Exhaustion: causes and treatment; a new approach to the treatment of allergy. Rodale Books, 1967.

Robinson, Corinne Hogden. Proudfit-Robinson's normal and therapeutic nutrition. Macmillan, 1967.

Roueché, Berton. Annals of epidemiology. Little, Brown, 1967.

Sadove, Max Samuel. Electroencephalography for anesthesiologists and surgeons. Lippincott, 1967.

Schreiber, Melvyn H. Intravenous abdominal aortography and placentography. Thomas, 1967.

Smith, Genevieve Waples. Care of the patient with a stroke . . . Springer, 1967.

Stott, Frank Dudley. Instruments in clinical medicine. F. A. Davis, 1967.

Thomä, Helmut. Anorexia nervosa. International Universities Press, 1967.

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in September, 1967 and 1966

	September			*January-September Inclusive*		
Diseases	*1967*	*1966*	*5-Year Median 1963-1967*	*1967*	*1966*	*5-Year Median 1963-1967*
Amebiasis	—	3	—	12	11	12
Aseptic meningitis	6	6	4	7	7	7
Brucellosis	—	2	—	—	9	3
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	2	22	15	14	33	30
Encephalitis, post-infect.	—	—	*	2	—	*
Gonorrhea	352	363	278	2,968	2,376	2,376
Hepatitis, infectious	21	8	23	157	131	195
Meningococcal meningitis	—	1	—	7	14	11
Pertussis	—	—	—	7	11	15
Poliomyelitis	—	—	—	2	—	—
Rheumatic fever	—	—	—	2	—	2
Salmonellosis	33	16	33	169	189	198
Scarlet fever	5	7	7	57	90	79
Shigellosis	16	3	14	40	52	52
Streptococcal infections	162	87	110	2,160	1,799	1,799
Syphilis	100	119	73	892	919	803
Tinea capitis	1	7	6	45	37	50
Tuberculosis	15	18	20	174	218	199
Tularemia	—	—	—	11	—	4
Typhoid fever	—	1	—	1	6	2

* Statistics for five-year median not available.

INFLUENZA IMMUNIZATION

Two influenza vaccines are available from commercial sources for the 1967-68 season. One is the newly-introduced bivalent vaccine, which contains only the A2 and B strains which are currently prevalent. The other (polyvalent) vaccine, similar to that used in past years, incorporates older strains (Types A and A1) as well as the newer A2 and B strains. The Advisory Committee on Immunization Practices of the U. S. Public Health Service reports that use of the bivalent vaccine should provide a greater degree of protection against current strains of influenza than previously has been possible.

Again this year the Committee states that annual influenza immunization is not currently indicated for all individuals, but should be given to persons in groups known to experience high mortality from epidemic influenza. Specifically, immunization with bivalent vaccine is recommended for persons in older age groups and for all individuals with chronic illnesses.

Announcements

(Continued from page 32)

University of Nebraska:

Feb. 5-7	*Closed Chest Cardiac Resuscitation*
Feb. 22-23	*Office Procedures for the General Physician*
Mar. 5-6	*Advances in Medical and Nursing Care of Cancer* (March 6 course at Kearney, Nebraska)
Mar. 21-22	*Abnormal Labor and Practical Endocrinology*
Mar. 28-29	*The Crying Child—Medical Emergency?*

For further information write the Department for Continuing Education, University of Nebraska College of Medicine, Omaha.

Obituaries

GRANT R. HASTINGS, M.D.

Dr. Grant R. Hastings, 78, died in St. Catherine Hospital, Garden City, on December 2, 1967.

Dr. Hastings was born at Grant City, Missouri, on March 4, 1889. He began his medical practice in Garden City in 1920, after graduation from the University of Kansas School of Medicine. He moved to Lakin in 1922, and returned to Garden City in 1941, where he continued his practice until his retirement two years ago. He was a member of a number of civic and fraternal organizations, and had served as an appointee to the Kansas State Board of Health.

Survivors include his wife and three daughters.

CHARLES R. MAGEE, M.D.

Dr. Charles R. Magee, physician at Marion for 21 years, died on November 27, 1967.

Charles R. Magee was born at Goddard, Kansas, on February 17, 1916, and was 51 years of age at the time of his death. He graduated from the University of Kansas School of Medicine in 1941 and interned at St. Francis Hospital in Wichita. He moved to Marion after serving three years as a captain in the medical corps during World War II. He was active in community affairs and had been Chief of Staff of St. Luke hospital in Marion.

He is survived by his wife, two sons and a daughter.

C. MART MONTEE, M.D.

Dr. C. Mart Montee died on December 6, 1967, in Mt. Carmel Hospital, Pittsburg. He was 81 years old and had been a practicing physician in Crawford County for nearly 60 years.

Born on February 16, 1886, at Cherokee, Kansas, Dr. Montee received his doctor of medicine degree from Barnes Medical College in St. Louis in 1910, and came to Pittsburg to practice. He had served as a member of the Pittsburg Board of Education and was a past president of the Kansas Association of School Boards. He served as mayor of Pittsburg from 1923 to 1927.

Dr. Montee is survived by his wife, a daughter and two sons.

WILLIAM P. WILLIAMSON, M.D.

Dr. William P. Williamson, 50, died at his home in Prairie Village on November 12, 1967.

Dr. Williamson was born on November 25, 1916, Monticello, Arkansas. He graduated from the University of Arkansas School of Medicine in 1938. He was a professor of surgery at the University of Kansas Medical Center and former head of the neurological section there. Interested in the relationships of medicine and religion, Dr. Williamson founded a graduate seminar for persons from the medical and religious fields. He was chairman of the Committee on Medicine and Religion of the Society, and served on a similar committee organized by the general assembly of the United Presbyterian Church.

Surviving are his wife, three sons and two daughters.

The Kansas Medical Society—1967-1968

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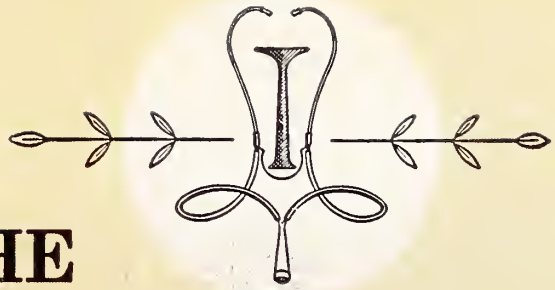
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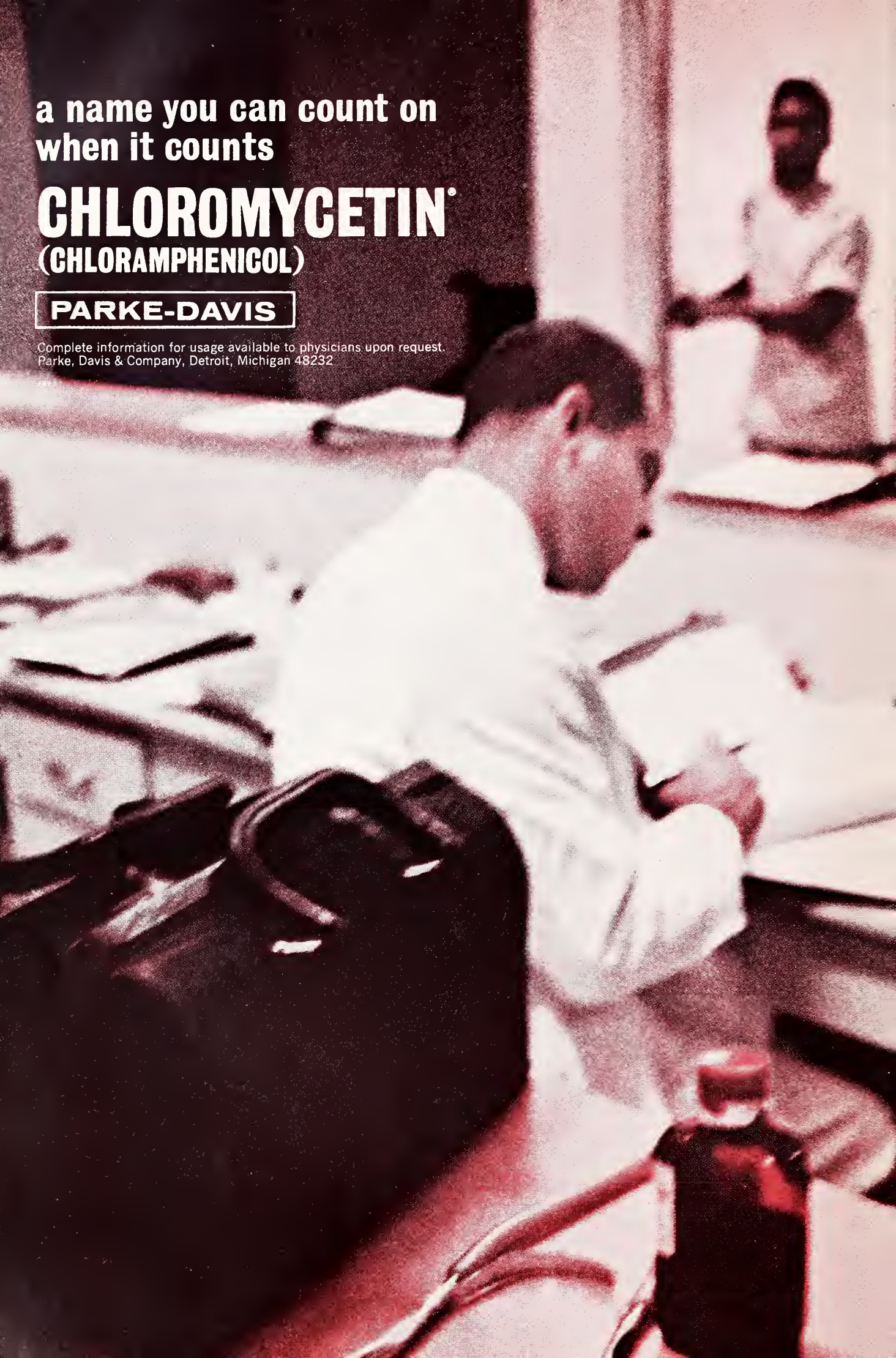


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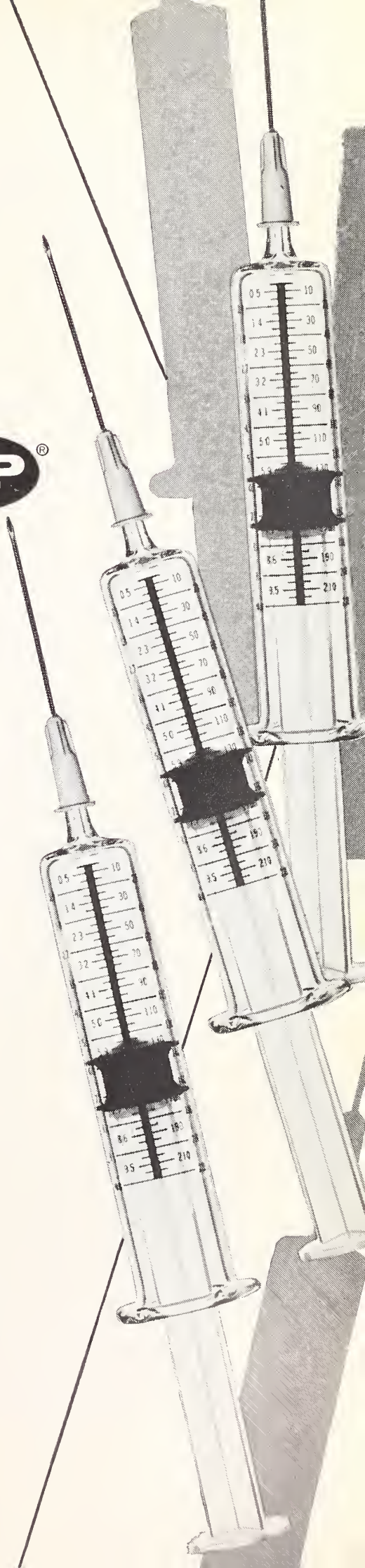

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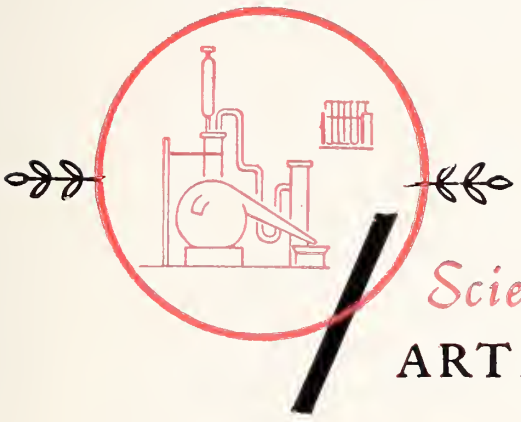
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Scientific
ARTICLES

Experiences with—

—*Videotape Self-Observation by Psychiatric In-Patients*

RONALD S. REIVICH, M.D. *and* **ROBERT H. GEERTSMA, Ph.D.,**
Kansas City, Kansas*

Introduction

ALTHOUGH IT HAS LONG been thought that emotionally disturbed persons have distorted self-concepts [5, 7, 17, 18] and that various psychiatric conditions may be associated with body image disorders,[3, 4, 9, 11, 14] until recently very little experimental work has dealt directly with the issue of how patients react to confrontation with veridical feedback about themselves. The advent of relatively low cost videotape equipment has, however, stimulated a growing interest in this area. Even before television tape recorders were commercially available, Cornelison and Arsenian[8] utilized still photography and motion pictures to confront a group of mostly psychotic patients with what they termed a self-image experience and reported psychic shock (a strong affective response) in many of the patients, clinical improvement in a few. Since their report, Moore et al.,[15] Alger and Hogan,[1] and Boyd[2] have reported therapeutic benefit from videotape self-viewing. On the other hand, Paredes,[16] working in association with Cornelison's group in Philadelphia was unable to identify significant differences in 50 behavioral dependent variables between a group exposed to repetitive videotape self-observation (VSO) and a control group.

While most workers have grappled with the problem of defining possible therapeutic effect of VSO, a research program in the Departments of Psychiatry and Medical Communication at the University of Kansas Medical Center has been directed instead toward understanding the psychological aspects of self-observational experience in hope that theoretical advance will lead to more intelligent clinical application of feedback media. From this perspective, an earlier study elucidated the reactions of one emotionally disturbed patient to repeated VSO in the context of traditional psychotherapy.[10] That pilot project indicated that playback material occasioned changes in self-concept and induced intense affective reactions. The present report summarizes clinical features of an investigation undertaken to explore responses to VSO

Videotape feedback technique applied to psychiatric interviews elicits a wide variety of responses in hospitalized patients. Therapist activity appears necessary for optimal treatment effects.

* From the University of Kansas School of Medicine.
This investigation was supported in part by a Public Health Service research career program award number MH 35294-01 from the National Institute of Mental Health.

in a representative sample of hospitalized psychiatric patients.

Method

Subjects and Standardized Interview

Sixty-four in-patients from the 50-bed psychiatric unit of the University of Kansas Medical Center voluntarily participated in this study, which required ten months to complete. Although all newly admitted patients were considered for inclusion, various difficulties made it impossible to involve successive admissions. Patients were included without regard to diagnosis but those considered by their attending physician to be too disorganized to take part in the study were excluded and several prospective *S*s refused to participate. No attempt was made to control for medication, which was not considered a relevant variable in this study. Most patients were taking some psychotropic agent, usually a phenothiazine or a tricyclic-type antidepressant. Within five to ten days after admission, each *S* was interviewed by a research assistant in a special television studio area of the Department of Psychiatry. The interviewer utilized a simple, structured, minimally intrusive open-ended protocol. These interviews, which generally lasted from 10 to 15 minutes, were recorded on videotape with equipment described elsewhere.[19] Later in the experimental procedure the videotape recording was played back to the *S*s in the presence of the interviewer, who transcribed his observation of the *S*'s reactions to VSO.

Rating Description and Response Questionnaire

Before and after the structured interview and following the videotape playback, the *S* completed a rating description of himself consisting of 56 polarized items representing 14 source traits taken from Cattrell's work on the personality factorial domain,[6] plus five additional items selected by the authors. This scale was used for all rating descriptions. Prior to the interview, the *S* was instructed to describe himself as he generally felt himself to be (henceforth referred to as the Self-As-Is description) and as he would ideally like to be (termed the Ideal Self description). Following the interview, he was instructed to rate himself according to how he remembered himself in the interview (which we will call the Remembered Self description). After the playback, which followed immediately, he was instructed to rate himself in terms of what he had just observed of himself on the television monitor (the TV Self description). The final phase of the experimental protocol involved his filling out a completion-type questionnaire designed to elicit a subjective account of the self-viewing experience. This questionnaire consisted of six completion items preceded by the following instructions: "Try to fill in the following phrases as accurately as possible." The six items were (1) "While watching the videotape playback, I felt:"; (2) "My appearance:"; (3) "I was surprised by:"; (4) "I was reminded of:"; (5) "The experience of watching myself was:"; (6) "Further comments:". The entire protocol, from initial self-rating to completion of the questionnaire, required from 45 to 90 minutes depending largely on how fast the *S* could work. To gain an impression of the effect of hospital treatment on self-viewing behavior, 26 (41%) of the original *S*s were re-exposed to another standardized interview and VSO experience, along with the identical testing regimen, two to three weeks after the initial experimental session. This second session was usually scheduled just prior to the *S*'s dismissal from the hospital. Inclusion in the retested subsample was unsystematic, being mainly a function of the availability of both *S* and research assistant.

Results and Discussion

The findings reported here, mainly impressionistic and descriptive, were sifted from interviewers' observations, ward psychiatrists' comments, and questionnaire responses. Discussion is included in this section for clarity. Reactions to the self-confrontation procedure are summarized in terms of specific characteristics (clinical variables) of the *S* population, affective responses, attitude toward the experience, "identifications" and "surprises."

Clinical Variables

Subjects ranged in age from 13 to 79. The ratio of 21 males to 43 females reflects the usual proportion of men to women (about 1:2) on the psychiatric service at any time. Shipley-Hartford Institute of Living (20) or WISC (21) IQ data were available for every *S*. Only one *S* failed to score in the normal range of intelligence or above, and that *S* was a young man with severe schizophrenic disorganization whose IQ would ordinarily have tested within normal limits.

Differential responses to self-viewing by males and females were not apparent in this study, except for a tendency for both men and women to remark on aspects of personal appearance customarily acknowledged significant for their gender role in our culture, such as hairdo for women and baldness for men. For purposes of rough comparison, *S*s were grouped on clinical grounds into five diagnostic categories as follows: (1) Schizophrenic (N=17); (2) Depressive, including both neurotic and psychotic types (N=23);

(3) Mixed Neurotic, including obsessional, hysteric and anxious types (N=7); (4) Character Disorder (N=9); and (5) Adjustment Reaction of Adolescence (N=8).

In general there was a tendency for response patterns to conform to the clinical groupings. Several schizophrenics reacted inappropriately to their self-image, manifesting in some cases complete indifference, rejection of the self-image, and forms of bizarre behavior typical not so much of the specific perceptual stimulus but of their own dominant psychopathology. Other schizophrenics, in some degree of remission, reacted by disparaging themselves or praising the experience as pleasant and helpful. Not surprisingly, many of the depressive *Ss* extended the sphere of their continual self-deprecation by including their playback image as an additional object for attack and criticism. The neurotic and character disorder groups behaved more heterogeneously, establishing no discernible response patterns; rather, these *Ss* tended to react to the self-confrontation as a more or less non-specific threat to be dealt with in accordance with their own characteristic defensive styles.

The Adolescent Adjustment Reaction group regarded their videotape appearance and performance more unfavorably than the other groups. Five of the eight *Ss* in this category expressed dissatisfaction with their appearance and only one expressed a favorable attitude toward the procedure itself. However, of the four *Ss* who saw themselves twice, three were strikingly more favorable toward the experience on the second occasion. These three appeared less anxious, expressed no dysphoric complaints, and were more satisfied with the way they looked.

So that possible age-related differences in response to the self-observational procedure could be examined, *Ss* were partitioned into four age groupings, as follows: (1) Age 13-19 (N=13); (2) Age 20-35 (N=23); (3) Age 35-55 (N=20); (4) Age 56-79 (N=8). Several trends from this breakdown deserve comment. Eight of the 13 teenagers made generally or even globally critical comments about their appearance on videotape. Of the remaining five, two were critical of some specific aspect of their appearance and another in essence rejected the entire procedure by responding bizarrely and commenting unintelligibly. The adolescents, furthermore, seemed unusually sensitive to their behavioral characteristics which they tended to evaluate negatively. Thus, they mentioned their "reactions," "self-reactions," "hand-movements," and "smoking." One boy with a proclivity for various kinds of dyssocial acting-out behavior whose typical stance was defiant and cocky commented that he looked "like a punk." A young girl with an hysterical gait and posture disturbance demonstrated remarkable symptomatic improvement shortly after seeing herself, although she made no mention of her problem in her questionnaire or spontaneous responses. A number of adolescents filled in the "surprise" completion item on the questionnaire with action-oriented observations, presumably finding various aspects of their behavior discrepant with their preconceptions. It can be inferred that for some teenagers VSO provided important feedback about their behavior which may not have been readily available from other sources, including conventional psychotherapy.

The 20-35 age group tended to be more accepting of their appearance than the teenagers. The two older groups were more displeased with their playback appearance, with four commenting specifically about how old they looked. The higher incidence of depression in the older *Ss* may have contributed to this response tendency. Moreover, elderly *Ss* were more negative about the entire procedure than the young adults. Seven *Ss* in the two older groups expressed some measure of disbelief about how they looked on the monitor.

Although *Ss* from all the age groups noted behavioral aspects of their television performance, surprisingly few framed these observations in interpersonally significant or psychotherapeutically useful terms despite the fact that all of them were in the hospital for treatment and probably had a psychological set to conceptualize the procedure as being in some fashion therapeutic. This suggests that videotape self-viewing *per se* is not likely to effect an optimal therapeutic response and that clinicians using videotape for treatment purposes should be prepared to take an active role in relating patients to significant aspects of the playback action.

Affective Response

Despite optimism by other workers about the therapeutic effect of VSO, the present authors have previously postulated that all self-observational experiences may evoke anxiety.[10] Recently Holzman and his group[12, 13] demonstrated that exposure to the sound of one's own audiotaped voice elicited short-lived interview, semantic differential and physiologic changes suggestive of affective disturbance. Because hospitalized psychiatric patients usually are already struggling with elevated anxiety, it was considered important to assess the effect of a two-channel (sight and sound) self-confrontation procedure on anxiety and other affects to ascertain whether such procedures were compatible with good patient care in a short-term diagnostic and treatment center. Self-observational effects were evaluated in three ways. The in-

terviewers' comments on *Ss*'s behavior during playback sessions were reviewed, ward house-staff and attending psychiatrists were questioned, and *Ss*'s completion responses were examined.

Twenty-five *Ss* (39%) were noted by the interviewers to manifest signs of anxiety during the playback period. These signs included postural changes, handwringing, inappropriate laughter, facial grimaces, and unsolicited comments about the action on the tape. Nine additional *Ss* displayed disinterest, depression, negativism, impatience, sullenness, facial grimaces, and inappropriate silliness in response to the playback, reactions which probably represent anxiety variants. Thus, 34 of 64 *Ss* (53%) demonstrated some behavioral perturbation at the initial self-screening. An overlapping group of 34 subjects responded to the questionnaire item, "While watching the videotape playback, I felt" with adjectives or phrases indicative of anxiety or dysphoria. These terms included "anxiety" or "anxious" (7 times), "disbelief" (9 times), "embarrassment" (3 times), "negative" (5 times), and "ambivalent" (5 times). Other *Ss* felt "tricked," "disgusted," "drunk," and "self-conscious." Thus, in describing their feelings about seeing and hearing themselves on videotape, over half of the *Ss* used adjectives suggesting some degree of discomfort. Of the 34 noted by the interviewers to become more anxious, 13 did not report dysphoric feelings. Of the 34 who described some subjective distress, 15 were noted as appearing more anxious. Twenty-one *Ss* both reported dysphoria and appeared more anxious. Thus, 49 (77%) evidenced either subjective or objective discomfort.

The second VSO occasion seemed considerably less distressing for most *Ss*. Of the 26 *Ss* re-exposed, 16 had appeared anxious previously but on repeat VSO only six manifested signs of disturbed behavior. Parallel to this, of the 17 *Ss* describing dysphoria at the time of the first playback, only seven remarked about subjective discomfort on the second occasion. This apparent diminution of unpleasant impact the second time probably reflects not only an intrinsic VSO attenuation effect but also the therapeutic progress during hospitalization. Better ego controls might have tended to inhibit manifestations of discomfort on self-observation more effectively. In this regard, several *Ss* spontaneously commented that the second videotape demonstrated or confirmed for them the progress they had made in the hospital. These comments suggest that some *Ss* utilized the VSO experience to justify a guilt-inducing hospitalization or to reassure themselves that they were getting better.

Was there a delayed clinical effect of the VSO on patients? Psychiatric residents and attending staff were questioned about their impressions of *Ss*'s reactions to the procedure. There was agreement among these respondents that the brief self-observational experience was neither helpful nor harmful, although several schizophrenic patients became transiently more confused or disorganized immediately following the playback session. In no case was there evidence of sustained negative effect.

Attitude Toward the Experience

Despite the anxiety-generating aspects of the viewing experience, 39 of the *Ss* (60%) responded to the questionnaire item, "The experience of watching myself was" with ostensibly favorable comments. To describe the experience they used such language as, "eye-opening," "interesting," "enlightening," "reassuring," "enjoyable," "rewarding," "exciting," "profitable," "helpful," "informative," "relaxing," "educational," "thrilling," and "fun." Mixed or guarded attitudes were expressed by 15 *Ss* who used such words as, "surprising," and "different" to describe the experience. Ten subjects were openly negative about the experience considering it "disgusting," "not very encouraging," "sickening," "heartbreaking," "depressing," "dumb," and "awful." Of the 26 *Ss* who participated in two viewing situations, 11 expressed favorable attitudes toward the experience on the first occasion, six were initially clearly unfavorable and the remainder were indefinite in their response. On the second occasion, however, 16 were favorably disposed, and only four were unfavorable. Two of these had been unfavorable the first time as well. Thus, of the 26 repeating *Ss* only six expressed unfavorable responses on either occasion. Of these six, three were considered depressed, two were adolescents, and one was diagnosed as schizo-affective (and was clinically depressed). In general, but not invariably, attitudinal response seemed to parallel affective response on both viewing occasions, i.e., those who were upset by the experience tended to dislike it, as one might expect.

Identifications

A striking observation in the previous study[10] was the *S*'s strong identification with her videotaped image. In playback viewing she was consistently sensitive to her appearance and behavior. She re-experienced the feelings communicated in the playbacks and at times revealed affect which she had apparently masked or defended against in the taped interview, as when she became depressed while watching her hostile behavior. *Ss* in the present study for the most part recognized and identified with their self-image but there were some notable exceptions. For example, one *S*, who burst into tears twice during the struc-

tured interview, watched the playback without apparent affect. After the self-viewing experience, she commented, "It doesn't seem real. It doesn't seem like me. It seems as if I've been watching somebody else. . . . I didn't experience any of the emotions while watching that I experienced in the tape. It made me feel like it wasn't true." This *S*'s questionnaire response described the experience as a "weird unreality." Five others expressed similar feelings which are reflected in the following comments: "It was like watching a stranger." "It was like a different person on the screen." "It was not really me and yet it was." "It was not me at all but a stranger." "It was like watching . . . someone else who was rather withdrawn and casual or indifferent." These statements probably represent effects of disturbed ego functioning such as the utilization of extreme denial or some other defense mechanisms. As might be expected, *Ss* in the second viewing exposure (after a period of hospital treatment) tended to confirm their identity more readily.

A related observation in the first study was the *S*'s recognition of unconscious identifications with or resemblances to others seemingly engendered by the self-observational experience. To illustrate, during several interviews the *S* had discussed her hated grandmother in detail and with great feeling. In a subsequent playback session she suddenly recognized her similarity to this despised person. In the present study only six *Ss* spontaneously acknowledged resemblances to significant others. One *S* stated that she was surprised that her voice sounded like her sister's. Another was surprised to find that she resembled her siblings. The psychologic significance of these recognitions of resemblances was not investigated. Two *Ss* remarked on the experience providing them with "insight" about how they appeared to a specific set of others, in their cases students or customers.

Appearance

One of the specific items on the completion type questionnaire concerned appearance. Twenty-eight *Ss* (44%) openly disparaged some aspect of their appearance. There was no striking difference between men and women in this regard. Of the remaining *Ss*, 32 were favorably inclined toward the way they looked on the television monitor, but 16 of them made critical comments about specific points such as weight, facial features, or baldness. There seemed to be relatively little change in this regard from the first to the second session, with 13 reacting unfavorably the first time and 11 the second. Of the 28 expressing displeasure about their videotape appearance, 23 were more anxious during the playback or responded to the questionnaire dysphorically, or both. Apparently, then, a *S*'s reaction to his appearance is significantly related to his affective response to the self-viewing experience.

Surprises

The completion item, "I was surprised by . . . ," was included in the questionnaire to tap possible examples of new self-awareness (or insight) or dissonant cognitions about the self. Every *S* but one responded to this item. Seventeen indicated surprise about their general appearance, 20 about their voice, and 21 about their affect or emotional state. Eight said nothing surprised them. Almost all of the 17 *Ss* who expressed surprise about their appearance were chagrined to some extent by the new perception. They observed themselves closely, mentioning not only relatively static, appearance-type perceptions (such as age, baldness, obesity and poor posture) but also more behaviorally-oriented perceptions (such as eye movement, emotional control, idiosyncratic mannerisms and smoking behavior). *Ss*'s observations about their voice tended to be unfavorable, a finding consistent with the aforementioned studies of response to one's own voice.[12, 13] Their comments included criticisms of enunciation, tempo and maturity ("poor articulation," "slowness," "childish"). The 21 references to surprise over affect most consistently indicated cognition of a discrepancy between emotional expression displayed on the tape and cognizance of feeling state at the time of viewing. Statements about observed emotional expression were often favorable. There were no striking differences in surprises registered by subjects exposed to self-viewing on the second occasion; in fact, six subjects expressed surprise over exactly what they had noted the first time.

Summary

After a brief, structured interview, 64 recently hospitalized psychiatric patients observed themselves on videotape playback. Twenty-six *Ss* (41%) repeated the procedure several weeks later. The initial videotape self-observation (VSO) experience evoked anxiety in most *Ss* (77%) and was temporarily disorganizing for a few. The subsequent exposure appeared less potent in this regard. Response patterns roughly corresponded to diagnostic grouping, *Ss* apparently defending against the impact of VSO by using their characteristic coping style. Despite its apparent anxiety-inducing potency, almost two-thirds of the *Ss* initially expressed favorable attitudes toward the procedure. Although most *Ss* identified with their videotape image, several severely disturbed individuals rejected the image, manifesting a depersonalization-like response. Six *Ss* (9.4%) spontane-

ously commented about their resemblance to a significant other person. Forty-four (69%) patients were critical of some aspect of their television appearance or behavior. Adolescents tended to see themselves more unfavorably than other age groups. The elderly frequently expressed disbelief at how old they looked. Few patients made psychotherapeutically useful observations about themselves in response to open-ended questionnaire items.

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MARK YOUR CALENDAR

109th Annual Session

of the

KANSAS MEDICAL SOCIETY

April 28-May 1, 1968

Ramada Inn

Topeka, Kansas

An Increasing Problem—

—*Fat Embolism Syndrome: Diagnosis and Treatment*

WILLIAM NICE, M.D., ***Topeka***

DUE TO THE GREAT INCREASE in automobile accidents during the past few years it becomes necessary that the fat embolism syndrome be recognized and treated when there are fractures of the long bones. Many mild cases are frequently overlooked. A high index of suspicion is necessary for the diagnosis since the time of onset is variable, occurring from a few hours to three or four days after trauma, and the symptoms frequently are not specific for the fat embolism syndrome. Fulminating cases rapidly terminate in death and often are not diagnosed prior to autopsy.

The fat embolism syndrome occurs most often in multiple fractures of long bones but may occur in injuries without fractures, or in such diseases as fatty liver, alcoholism, burns, pneumonia, diabetes, osteomyelitis, gas bacillus infections, eclampsia, and cardiac resuscitations, as well as poisonings, such as alcohol, phosphorus, sodium hydroxide, ammonium hydroxide, carbon tetrachloride or ether. It occurs occasionally following surgery, blood transfusions, cardiopulmonary bypass, or renal homotransplantation.

There are two major theories concerning the origin of the fat embolism syndrome. The first is that intravasation of marrow fat into the venous system is responsible for the clinical symptoms of fat embolization. This theory states that the thin-walled intraosseous veins are prevented from collapsing by their adherence to the bony framework. This is supported by occasionally finding parts of the bone marrow tissue in the lungs. Experimental work has shown that if fat is stained with dye and then injected into the bone, following which the bone is broken, the stained fat emboli can be demonstrated in the lungs within seconds.

The second major theory concerning the origin of fat embolism is that trauma through some mechanism affects the stability of blood lipids, leading to the coalescence of the chylomicra into large fat globules. Favoring this theory is the occurrence of fat emboli in conditions other than trauma. The level of fat in the blood is not as important as the type of fat. This second theory is supported by the fact that elective bone surgery (such as intramedullary nailing) does not produce a higher percentage of fat embolism syndrome than the same fracture treated by external fixation.

Clinical Course

The onset may occur from a few hours to three or four days after the accident. The two most frequent findings are tachycardia and tachypnea. These are usually asociated with fever up to 102°, dyspnea, drowsiness, restlessness, delirium, even coma. Frequently cyanosis and petechiae occur from the second to the fifth day. The petechiae occur across the shoulders, upper part of the chest and often extend up to the base of the neck, and to the axillae. Sometimes the thighs and frequently the conjunctivae are involved. Fundus examination will reveal these petechiae as "cottonballs" close to the disc. This cottonball sign (Purtsher's sign) in the fundus is considered by some to be diagnostic of the fat embolism syndrome.

The fat embolism syndrome may occur following car accidents with multiple fractures as well as many other diseases including burns, blood transfusions, severe infections, poisonings, cardiac resuscitation, and cardiopulmonary bypass. Early diagnosis and specific therapy with oxygen, intravenous alcohol, intermittent positive pressure breathing, heparin, or dextran 40 are necessary. Urgent and effective treatment should be begun as soon as the diagnosis is suspected.

There is sometimes a lucid interval during which the patient may become conscious for a while, talk, and then become unconscious again. Occasionally renal function will diminish greatly. The blood pressure is often within normal limits. The mental state may change and is often associated with other traumatic involvements such as chest injury, abdominal wall injury and brain injury.

Laboratory Data

A sudden drop in hemoglobin is usually noted first. As soon as the diagnosis of fat embolism is suspected

the urine should be examined for fat, which is found in the urine in about 50 per cent of the cases. Fat will float, therefore the urine specimen has to be complete, preferably collected in a beaker and the surface stained. The serum lipase rises usually within 24 to 48 hours. This is frequently considered to be due to abdominal injury. However, if the serum lipase elevation occurs after two days, it is more likely due to pulmonary lipase and is more diagnostic of fat embolism. Occasionally fat globules may be found in the sputum. Chest x-ray films may reveal nothing or may reveal diffuse scattered nodular disease up to and including severe pulmonary edema. Skin biopsy of the petechiae may reveal fat. However, again the fat staining technique should be the Sudan III or similar type of fat stain. Needle biopsy of the kidney also may reveal fat embolism, but carries a certain risk.

Two clinical phases should be remembered. The first is the mechanical phase, during which the acute cardiopulmonary symptoms occur. The fat globules larger than eight to ten microns are trapped in the lung capillary bed, causing the tachypnea, air hunger, very often right heart failure with acute right heart strain. There may be a gallop rhythm or other cardiac arrhythmias. Some of the fat globules go through to the kidney, brain, or skin. Severe pulmonary edema, fever, tachycardia, or cyanosis may occur. Next, the second (or chemical) phase follows, during which the lung produces lipase which is very toxic. This pulmonary lipase may be responsible for the diffuse symptoms of the central nervous system such as restlessness, drowsiness, and signs of mental confusion. However, they are very often due to cerebral anoxia or cerebral petechiae.

Treatment

The first and most important is to maintain an adequate airway. This requires a high oxygen concentration—usually 100 per cent—and is necessary for the lungs and brain. It very often requires intermittent positive pressure with the use of oxygen and alcohol; usually 10 per cent ethyl alcohol (up to 70 per cent) should be given with 60 to 100 per cent oxygen to reduce the pulmonary edema. The use of 1,000 to 2,000 cc of five per cent ethyl alcohol in five per cent glucose given intravenously has been found to be very useful and may need to be repeated daily for several days. Digitalis is necessary if right heart failure develops. The use of heparin has been stressed recently, usually in sub-anticoagulant dosage such as 25 mg. four times a day. The use of dextran has been found to be helpful. Dextran reduces intravascular clumping of red blood cells, increases fluidity of the blood, improves capillary flow, increases tissue perfusion and will often exert a siliconizing effect on the injured blood vessel. Prevention of further injuries by eliminating unnecessary manipulation of fractures must be considered. Hypothermia (reducing the body temperature to 90°) has been tried in England with some success.

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Law-Medicine Comment

Informed Consent

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THE QUALITY OF CONSENT has become increasingly vital to physicians in recent years as demonstrated in a number of pertinent court opinions. In these actions, general consent of the patient to the procedures is not in dispute, but, following unsatisfactory results, issues of intelligent or informed consent are raised. The basis of these charges usually is negligence, or malpractice, in not informing the patient of the nature and probable outcome of the contemplated procedure, and in not informing him of the hazards reasonably to be anticipated. This has the effect of preventing the patient from intelligently considering the proposed procedure and possible alternatives. On the other hand, in some jurisdictions the basis of the action may be in assault and battery, since the entire consent is considered a nullity if informed consent is absent.

This problem of failure to forewarn the patient has arisen in a variety of clinical situations, increasing numerically in recent years, involving surgery, non-surgical treatment, and diagnostic procedures. Surgical examples include ligation of the vas during prostatectomy, voice changes following thyroidectomy, leg amputation after aortic surgery, eye loss or damage after cataract surgery, deafness after ear procedures, paralysis after laminectomy, laryngeal granuloma from endotracheal intubation, death following surgical procedures. Non-surgical examples include complications of insulin shock or electroshock therapy, aplastic anemia after chloromycetin administration, complications of radiation therapy. Diagnostic examples are paralysis after aortography, and esophageal perforation during endoscopy.

Kansas Court Decisions

Several recent decisions by the Kansas Supreme Court have added to the growing volume of case law in this field, emphasizing the desirability of physicians' familiarity with these matters. In a basic decision in 1960,[1] the plaintiff patient received cobalt therapy following radical mastectomy, with resulting injuries. The patient consented to the treatment, but later asserted that the nature and consequences of the treatment were not properly explained to her. In reversing a district court judgment in favor of the defendant physician and hospital, the court commented on the relatively new and potentially hazardous nature of cobalt therapy, and stated that in the absence of an emergency, a physician violates his duty to his patient and subjects himself to liability for malpractice, if he makes no disclosure of significant facts within his knowledge which are necessary to form the basis of an intelligent consent by the patient. The court further stated that absence of informed consent results in malpractice regardless of how skillfully the the treatment was administered, whereas if informed consent was present the issue becomes one of negligence in treatment. Intelligent consent was said to result from disclosure of those consequences of treatment which a reasonable practitioner would disclose. This calls attention to the legal concept of the "reasonable practitioner," using the degree of learning and skill ordinarily possessed by members of his profession and of his school of medicine in the community where he practices or in similar communities, and making the anticipated reasonable disclosures.

The physician has an obligation to his patient to explain the nature and probable consequences of procedures and treatment, and to make reasonable disclosure of inherent risks and dangers. This obligation is modified in emergency or special circumstances.

A 1963 decision[2] resulted from an action concerning the death of a child during cardiac catheterization under general anesthesia. In affirming the district court decision for the defendant physicians and holding that reasonable disclosures had been made under the specific facts, the court quoted the previous 1960 decision, stating that a doctor must disclose to his patients the nature and probable consequences of the recommended treatment and must make a reasonable disclosure of the dangers within his knowledge which are incident to this treatment. The court further stated this does not mean that a doctor is under obligation to describe in detail all the possible consequences of treatment. To make complete disclosure of all facts,

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diagnoses, and alternatives or possibilities which might occur to the doctor could so alarm the patient that it would, in fact be bad medical practice.

The court emphasized the reasonable disclosure concept and recognized the difficult problem of medical judgment:

> . . . the duty of the physician to disclose, however, is limited to those disclosures which a reasonable medical practitioner would make under the same or similar circumstances. How the physician may best discharge his obligation to the patient in the difficult situation involves primarily a question of medical judgment. So long as the disclosure is sufficient to assure an informed consent, the physician's choice of plausible courses should not be called into question if it appears, all circumstances considered, that the physician was motivated only by the patient's best therapeutic interests and he proceeded as competent medical men would have done in a similar situation.

In 1964, in an opinion relating to damages for the loss of an eye following cataract surgery with subsequent infection,[3] in holding for the defendant physician for other reasons, the court remarked that it could not extend the duty of a physician or surgeon to the extreme where he would need apprise his patient not only of the known risks, but also of each infinitesimal, imaginative, or speculative element that would go into making up such risks. This again returns to the concept of disclosures made by a reasonable physician under similar circumstances.

The most recent decision, in 1967,[4] resulted from the loss of a testicle subsequent to inguinal herniorrhaphy with a tight external ring. In affirming the district court summary judgment in favor of one of the defendants, and reversing the judgment in favor of two others, the court reiterated the previous position, emphasized the changing burden of proof in the event the physician makes no disclosure relative to risks and dangers, and commented on the need not only for actual disclosures, but ascertainable ones, relating to the necessity for adequate records. The court stated:

> . . . in the absence of an emergency, a physician has an obligation to make reasonable explanation and disclosure to his patient of the risks and dangers which inhere in a proposed course of treatment (and, we may add, in a proposed operation) to the end that whatever consent the patient gives to the prescribed treatment (or operation) may be an informed and intelligent consent; that where a physician, or surgeon, is silent and makes no disclosure whatever, he has failed in the duty owed to his patient and the patient is not required to produce expert medical testimony to show that the doctor's failure was contrary to accepted medical practice, but it devolves on the doctor to establish that his failure to make any disclosure, did, in fact conform under the confronting conditions, to accepted professional standards; and that where actual disclosures have been made and are ascertainable, then expert medical testimony is required to establish that the disclosures did not accord to those which a reasonable medical practitioner would divulge under the same or like circumstances.

Summary and Conclusion

1. Treatment or procedures without express or implied consent, or outside the scope of the consent, result in an intentional tort, assault and battery, as distinguished from an action based on negligence, which occurs in substandard performance of an authorized procedure.

2. Consent to procedures and treatment must additionally be informed consent, meaning that the patient has been advised of the nature and probable consequences of treatment and a reasonable disclosure of inherent risks has been made. However, a physician need not disclose all possible consequences, and not speculative, imaginative or infinitesimal risks. Failure to obtain informed consent results in malpractice, if directly-caused injury occurs, and if emergency or special circumstances are absent.

3. The physician's disclosures should be patterned on disclosures expected from a prudent physician in similar circumstances, practicing in the same or a similar community. The law recognizes that the specific facts of a case may make disclosures inadvisable, but may require the physician to prove that such action conforms with established professional standards.

4. A physician, in making disclosures, would be guilty of "bad medical practice" if he unduly alarms the patient with complete disclosure in detail of all possible consequence of treatment, beyond the concept of reasonableness.

5. In issues of informed consent, if disclosures have been made, then the standard is one of reasonable care, and the complaining patient must present expert medical testimony in evidence. If no disclosures have been made by the physician, however, the burden of proof changes, and no expert testimony for the patient is required.

6. Finally, it can be stated that the patient must be forewarned of ordinary risks inherent in ordinary procedures or ordinary treatment. Extraordinary risks are probably excluded from the basic pattern, but should, of course, be disclosed if extraordinary or relatively new procedures are contemplated. The advisability of prudent consultation and complete written documentation is obvious.

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CP + T

Newsletter

As indicated last month, the use of drugs for therapy of hyperlipidemias is predicated on the assumption that lowering plasma and, presumably, tissue stores of lipids will have a beneficial effect on the morbidity and mortality of coronary artery and other atherosclerotic vascular disease. Diet is the mainstay of therapy. If the patient is overweight, total caloric restriction is the first approach. The division of calories into carbohydrates, proteins, and fats will not be discussed in this article except to indicate patients with Type I or Type V hyperlipoproteinemia may be helped by receiving their neutral fat intake as medium chain triglycerides (can be purchased as Portagen). Since the medium chain fatty acids are absorbed primarily via the portal system, chylomicronemia does not occur to the extent that it does on a regular fat intake.

Drugs for the therapy of hyperlipidemias fell into some disrepute following the withdrawal of triparanol (MER-29) because of toxicity. The newer compounds do not have the severe toxicity seen with triparanol. In the following discussion we intend only to list the salient features of each drug and certainly not to list all the adverse reactions or precautions.

Nicotinic Acid—The mechanism of its action is not known precisely. Large doses (3-6 gm/day) are required for the hypocholesterolemic and hypotriglyceridemic effect. Nausea, vomiting, and pruritis and flushing (cutaneous vasodilatation) are common. Patients frequently become tolerant to the latter after a few weeks but gastric irritation may persist. Liver function abnormalities such as elevation of alkaline phosphatase and BSP retention are not unusual with larger doses. They may reflect biochemical rather than morphologic abnormalities, although electron microscopic study of the liver of patients receiving nicotinic acid shows changes similar to those seen in kwashiorkor, chronic hepatitis, cirrhosis, prolonged extrahepatic cholestasis, and severe alcoholism (*Mayo Clinic Proc.* 42:385, 1967). Patients on long-term therapy frequently develop carbohydrate intolerance and in diabetics the drug may increase requirements for hypoglycemic agents. Salts of aluminum, sodium, or potassium are available as well as sustained release forms such as nicotinyl alcohol tartrate.

Estrogens—The use of these substances is based on the data that premenopausal women have less atherosclerotic vascular disease than men of the same age. This drug is usually administered as conjugated equine estrogens (Premarin). Studies (*Proc. of Symp. Drugs Affecting Lipid Metabolism*, Amsterdam, Elsevier, page 432, 1961; *Proc. Soc. Exp. Biol. Med.* 110:400, 1962) have provided data that middle aged men, who had survived a myocardial infarction, had a decreased mortality rate while receiving the drug. It is important not to start therapy until three months after the myocardial infarction and start with a small dose which is increased to 2.5-5.0 mg. daily. Adverse reactions are feminization in males and salt and water retention which may lead to or aggravate congestive heart failure.

Dextro thyroxine (Choloxin)—This drug has an effect on cholesterol metabolism in liver and is effective in Type II, III, and IV hyperlipoproteinemias. The dextro isomer has approximately 1/20 the calorigenic effect of the naturally occurring levo form. Therefore, it does have a mild metabolic and cardiovascular effect, tending to aggravate or precipitate angina pectoris in some patients. The drug also

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

lowers triglyceride levels slightly. The usual dose is 4-6 mg/day. The drug should not be used in patients with organic heart disease. It is important to start at a low dose (1-2 mg/day) and gradually increase 1 mg/month if tolerated and necessary. d-thyroxin reduces the requirements for the coumarin-type anticoagulant.

Clofibrate (Atromid-S)—This drug has been available by prescription since May. It is most effective in patients with elevated triglyceride levels (Type III, IV, V), but has a minimal effect on the serum cholesterol even in Type II patients. Mild toxic gastrointestinal effects have been the most frequent type of adverse reaction. The first week, transient elevations of the SGOT and other transaminases occur but do not appear to signify liver necrosis. This drug also reduces requirements for coumarin anticoagulants by displacing them from their plasma protein binding sites (this effect of drugs will be discussed in a future issue of the Newsletter). The usual dose is 500 mg., four times a day. We have used this drug for over four years with little adverse reaction and good results, especially in patients with hypertriglyceridemias, although all patients with elevated serum lipids do not respond to this drug.

Cholestyramine (Questran, Cuemid)—This drug is a non-absorbable resin which binds bile acids in the intestine, preventing their reabsorption. As the circulating level of bile acids decreases, the rate of conversion of cholesterol to bile acids is increased. In time, the rate of transformation cannot keep up with the rate of removal and there is a net decrease in the level of cholesterol. Although available by prescription for the treatment of the pruritis seen in biliary cirrhosis, the use for treatment of hypercholesterolemia is still considered investigational by the F.D.A.

Effective in the hard to treat Type II hypercholesterolemia, cholestyramine has some effect on triglyceride levels also. The initial dose is 4 gm. t.i.d. just prior to meals, but may need to be increased to as much as 30 gm/day. At low doses, the resin may produce constipation, but the 30 gm. dose may lead to steatorrhea and malabsorption of fat soluble vitamins. Since drugs may also be bound loosely to the resin, all drugs should be administered at least 30 minutes before the resin. Toxicity is quite low since the resin is not absorbed.

The drugs discussed above are only a few of the numerous drugs which have been used to treat hyperlipidemias. In our opinion, those listed are the most therapeutically useful agents currently available. We would be willing to supply information about any others if requested.

AMA SERVICE BRIEFS

Widespread concern, particularly among alarmed parents, over the nation's rising drug abuse problem and the raging "front-page" controversy centered around the increasing use of LSD, marihuana and other hallucinogenic drugs by thrill, curiosity and "self-improvement" seekers on and off college campuses has spurred the AMA to develop a 25-page booklet, *The Crutch That Cripples: Drug Dependence.*

The publication is designed to give the public a sound understanding of drugs, their uses and abuses and the problems which irresponsible use leaves in its wake.

The publication was prepared by the Committee on Alcoholism and Drug Dependence, Council on Mental Health, in response to heavy mail and telephone inquiries received in recent months by the AMA's Department of Mental Health.

Written lucidly and in colorful language readily understood either by parents or the younger set, *The Crutch That Cripples* discusses all aspects of drug use.

Among the topics covered are medical uses of drugs, drug dependence, drug abusers, abuse of narcotics, sedatives, stimulants and hallucinogens, where to get help for drug abusers and prevention of abuse. The booklet also calls attention to a current bibliography available from the Department of Mental Health on drug abuse and drug dependence.

Copies of the publication may be obtained from the AMA Order Department. Single copies are 25 cents. Reduced prices, ranging downward to 17 cents each for lots of 1,000 or more, are offered on quantity orders.

* * *

The third revision of *Group Practice: Guidelines to Forming or Joining a Medical Group,* originally published in 1962, is now off the presses. Medical societies and individual physicians may obtain complimentary copies by writing the Department of Health Care Services, American Medical Association.

Jointly produced by the AMA, the American Association of Medical Clinics and the Medical Group Management Association, the 40-page booklet covers all aspects of group practice.

There are two days in the week about which and upon which I never worry. Two carefree days, kept sacredly free from fear and apprehension. One of these days is Yesterday . . . and the other day I do not worry about is Tomorrow.—Robert Jones Burnette



Progressive Weakness, Ataxia, Suboccipital Headaches, and Confusion

THIS WAS THE FIRST KUMC ADMISSION for this 55-year-old white, right-handed farmer who had a complaint of right-sided weakness and headaches.

Following a mild fall from a wagon onto his neck and shoulder four years before admission, the patient had right shoulder pain followed very insidiously by weakness, numbness, and awkwardness of the right arm and hand. These symptoms had progressed steadily since that time. Occasional dull, shoulder and right upper arm pain had bothered him since then. The discomfort was not affected by neck movement, coughing or sneezing.

He had had intermittent suboccipital headaches for two years. They were at times associated with vomiting, and on one occasion he became unconscious without a convulsion. He was hospitalized elsewhere at that time, and was later informed that he had hypertension and mild diabetes. He was given oral medications for each of these conditions. For six months he had had progressive awkwardness in walking, and for two months he had had mental dullness, confusion, and disorientation.

The patient had a history of "appendicitis" that subsided without surgery in 1936. He had a right herniorrhaphy in 1957. There was no history of serious injuries, allergies, or adult illnesses.

His father died of pneumonia, and his mother of kidney stones. Four brothers are living and well. The patient smoked occasionally and denied use of alcohol.

The patient's review of systems was negative except for occasional dull, left substernal aching that was aggravated by exercise, and that subsided in two to three hours. This discomfort was associated with dyspnea, and occasionally with sweating.

The patient was an apathetic, dull, and intermittently disoriented and confused white man who was sandy-haired and ruddy-complexioned, with coarse hands and weathered skin. The blood pressure was 150/90; pulse rate, 80; respiratory rate, 20; oral temperature, 36.5°C. Eyes, ears, nose, and throat were not remarkable. The heart was not enlarged. The heart rate and rhythm were normal. There were no murmurs or thrills. The chest was hyperresonant. The genitalia were normal. The prostate was not enlarged.

The patient's gait was ataxic, but Romberg's sign was absent. There was no nystagmus. There was early bilateral papilledema, but the visual fields were normal. The cranial nerves were functionally intact. There was awkwardness and ataxia of a peculiar type of the right arm and hand. There seemed to be sensory impairment of all modalities of the right hand of "long glove" distribution. The position sense and stereognosis were normal. There was no sensory or motor defect in the other extremities except for an absence of a biceps reflex on the right. All of the other deep tendon reflexes were present and hyperactive. There was no clonus, and Babinski's sign was absent.

The hemoglobin was 18.9 grams per cent; hematocrit, 60; reticulocytes, 2 per cent; platelets, 195,000; and WBC, 5,450 with 94 per cent polymorphonuclear neutrophiles (88 per cent filamented and 6 per cent nonfilamented), 4 per cent lymphocytes, 1

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per cent basophiles, and 1 per cent monocytes. The VDRL was non-reactive. The blood urea nitrogen was 18 mg. per cent; cholesterol, 312 mg. per cent. The CO_2 was 28; sodium, 139; potassium, 3.4; chloride, 103; calcium, 5.3 and phosphorus, 1.4 mEq per liter. The total serum protein was 7.1 grams per cent with albumin 4.2 and globulin 2.9 grams per cent. In the glucose tolerance test the fasting value was 115 mg. per cent with hourly values of 215, 175, 153, and 98 mg. per cent. The LE preparation was negative. The patient's prothrombin time was 14 seconds and the control was also 14 seconds. The indirect serum bilirubin was 0.1 mg. per cent; total, 0.5 mg. per cent. The serum glutamic oxalacetic transaminase was 9 units. The alkaline phosphatase was 1.0 units per liter. The cephalin flocculation was negative. The total blood volume was 6.6 liters. Peripheral blood oxygen saturation was 95 per cent. Histoplasmin and tuberculin skin tests were negative. The electroencephalogram showed bursts of bilateral temporal slowing.

Following a mercury-203 tagged chlormerodrin brain scan, carotid arteriograms, and brachial arteriograms a craniotomy was performed. The patient's immediate postoperative condition was satisfactory, but he developed progressive stupor and rising blood pressure over the next 16 hours. These were temporarily alleviated by ventricular tapping and tracheostomy. Forty-eight hours later, because of recurrent stupor with normal or slightly low blood pressure, his wound was surgically reexplored for a postoperative clot, but none was found. He died on the operative table with simultaneous respiratory and cardiac arrest.

Dr. Mahlon Delp (moderator): Do you have any questions of Dr. Snyder?

Elbert Caple (student):* Was there localized weakness?

Dr. Gregg Snyder (resident in neurosurgery): He moved his right upper extremity in rather a rigid fashion. With ataxia it was difficult to tell whether this was a matter of incoordination or of weakness. By observation it was a very jerky type of movement but he did miss his nose on several attempts.

Mr. Caple: Were any personality changes noticed before hospitalization?

Dr. Snyder: He became somewhat more irritable and frankly disoriented two months before his admission. He would get lost in the farm yard—that sort of thing.

David Breckbill (student): Did this man come from a mountainous area?

Dr. Delp: Perhaps the Ozarks.

David Beggs (student): Were there any fundoscopic abnormalities other than the early papilledema?

Dr. Snyder: We looked at his fundi extensively, and found none that were of any significance.

Gilbert Cordova (student): Could we have a better description of this man's gait, please?

Dr. Snyder: The best description I could give would be an unsteady gait with no falling to either side, and a difficulty in moving his right leg. He did, however, have good strength and could bear weight and walk on his right leg. He had difficulty in walking heel-to-toe, but he could perform it without falling. He handled both lower extremities in a manner suggesting some mild spastic disease.

McWilliam Davis (student): Was there any muscle or nerve tenderness of the right upper extremity?

Dr. Snyder: No, there was not.

Mr. Caple: Was there any evidence of trophic cutaneous changes on the right upper extremity?

Dr. Snyder: No.

Mr. Breckbill: Was there any family history of organic intracranial disease?

Dr. Snyder: None.

Mr. Beggs: Were there any signs of meningeal irritation, such as nuchal rigidity?

Dr. Snyder: None.

Mr. Cordova: What was this patient's weight?

Dr. Delp: 166 pounds, and he was 69 inches tall.

Mr. Davis: Were there any subsequent hemoglobin or hematocrit determinations and, if so, what were they?

Dr. Delp: Yes, there were two others. The hemoglobins were 17.4 and 16.9 gram per cent, and the hematocrits were 57, and 52.5 per cent.

Mr. Caple: Were there any studies done on the cerebral spinal fluid?

Dr. Delp: None was reported here. He had no spinal tap before the craniotomy.

Dr. Snyder: We routinely sent fluid to the laboratory for culture and routine tests at the time of the craniotomy, but these were not recorded in the chart.

Mr. Breckbill: Was there any increase in the pulse rate postoperatively or before his death?

Dr. Delp: His pulse rate ranged between 100 and 140 per minute in the last few hours of his life. It was rapid.

Mr. Beggs: What were the results of the urinalysis?

Dr. Delp: Normal.

Mr. Cordova: Were there any skin lesions or discolorations—particularly in the occipital area?

Dr. Snyder: None.

Dr. Delp: All right, thank you Dr. Snyder.

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* Although a student at the time of the conference in April, 1964, he, like the others referred to as students, received the M.D. degree in June, 1964.

Now, Mr. Breckbill, please demonstrate the electrocardiograms.

Electrocardiograms

The first tracing was made on November 11, 1963. There is regular rate with a rhythm of about 100. The axis is normal. There are no abnormalities in the P waves. The P-R interval is normal. There is normal progression of the R waves across the precordium. There is some counterclockwise rotation as evidenced by the persistence of the S wave in V-6. I interpret this EKG to be normal.

The next EKG was made on November 25, 1963. There is regular sinus rhythm and a rate of about 100. There are some non-specific T wave changes in leads V-3 to V-5 which may raise some question of electrolyte imbalance. I interpret these as being within normal limits.

Dr. Delp: Mr. Caple will now demonstrate the x-rays.

Radiographs

In the PA film of the chest there are no bony abnormalities. The heart is not enlarged. There are increased bronchovascular markings bilaterally. I interpret this as being an essentially normal chest.

The intravenous pyleogram shows that the kidneys are of normal architecture. There is no evidence of hydronephrosis of hydroureter. The right calyceal pattern is somewhat distorted. There is no evidence of stones. Degenerative changes of the lumbar spine are evidenced by lipping. I interpret this as being an essentially normal IVP for a patient of this age.

The brain scan reveals an area of increased activity in the left compatible with its being in the cerebellum. This area of increased activity is also demonstrated on the lateral film.

The next film is an early phase of a carotid arteriogram. There is no shift of the midline structures. There is some lateral displacement of the middle cerebral artery which would be compatible with hydrocephalus. A later phase of the arteriogram shows no shift in the midline structures, and abnormalities are seen in this film. In the lateral of the carotid arteriogram there is some early suggestion of the tumor stain in the cerebellar area, and in a later phase of the carotid arteriogram a tumor stain is much better seen in the area of the cerebellum.

The next film shows an early phase of the brachial arteriogram. The vertebral and basilar arteries are not remarkable. There are no evidences of abnormality in this film.

The lateral view of the brachial arteriogram *(Figure 1)* demonstrates a tumor stain in the area of the cerebellum. There are changes in the vasculature



Figure 1. Lateral view of the brachial arteriogram.

within this tumor stain which is shown by areas of narrowing and beading of the vessels.

Dr. Delp: Thank you Mr. Caple. Dr. Germann, do you have any comments?

Dr. Germann (radiologist): I just want to make a comment on the sequence of events of this patient. First, when the carotid arteriogram was done, there was little question about the area to which Mr. Caple directed his attention on the lateral film, but we were inclined to overlook this until after we had got the scan. Then we felt that it was of help in localizing the lesion. It was after this that we went back and did the brachial and vertebral contribution.

Dr. Delp: Thank you. Now we are going to ask Mr. Davis to begin the discussion.

Discussion

The case for presentation today is that of a 55-year-old white man who was apparently in good health until four years before his admission when he began to have progressive weakness and awkwardness of the right upper extremity. Two years later he started having intermittent suboccipital headaches associated with vomiting, and, on one occasion, with stupor. For six months he had had progressive awkwardness in walking, and for two months before admission he exhibited mental dullness, confusion, and disorientation. Our discussion and differential diagnosis is based on the postulate that this patient had intracranial disease manifested by the symptoms and signs of increased intracranial pressure and ataxia.

Intracranial disease may be caused by neoplasms, vascular disease, infections, trauma, toxic substances, metabolic changes, degenerative processes, or disturbances of development. Vascular disease of the brain accounts for the majority of cases of organic nervous system disease encountered in the practice of medicine. There may be evidence of either focal or diffuse cerebral changes, and these may be of either sudden onset or gradual impairment of cerebral function. Focal disturbances of vascular supply are usually sudden and spectacular in onset and include intracranial hemorrhage, cerebral thrombosis and embolism, and vasospastic disorders. We exclude these because the patient's disease was slowly progressive.

Diffuse vascular diseases, although insidious in onset, are ruled out because they are not usually accompanied by signs of increased intracranial pressure.

Intracranial infection may affect the meninges, brain tissue, or both, but the patient's symptoms were present for four years and the lack of systemic symptoms such as fever or leukocytosis make infection an unlikely diagnosis. Luetic lesions were not seriously considered because of the negative serology.

Traumatic or toxic causes are ruled out for lack of a suitable history. Metabolic abnormalities such as diabetes mellitus or deficiency states do have adverse effects on the peripheral and central nervous systems, but they do not usually cause increased pressure. Developmental anomalies are ruled out because of the onset of symptoms so far into adult life.

Intracranial neoplasms can best explain this patient's signs and symptoms, the increased intracranial pressure and the slow progression of symptoms over a period of time. Symptoms and signs of intracranial neoplasms depend upon their expansile nature and may include headaches, vomiting, mental and personality changes, reflex inequalities, and papilledema. Any expanding intracranial lesion may cause symptoms and signs of intracranial pressure, so that is of no value in localizing the lesion. For such localization we must depend upon the other neurological signs demonstrated by this patient, in particular, the ataxia. Although ataxia is more commonly attributable to cerebellar dysfunction, other causes of ataxia are sometimes encountered. In supratentorial tumors it may result from pressure transmitted through the tentorium to the cerebellum or from interference of the efferent pathways in the cerebellum in the region of the incisura tentorii. Such tumors usually produce other symptoms which are referable to their site of origin. Some such symptoms may be visual field defects, aphasia, astereognosis, and seizures. These symptoms are not exhibited by this patient. Ataxia can develop in patients with frontal lobe tumors. The sequence of appearance of the symptoms is helpful in differentiating between frontal and cerebellar tumors in patients with ataxia. Involvement of the frontal lobe commonly results first in the appearance of personality changes and mental symptoms such as forgetfulness, social aberrations, disorientation and inappropriateness. This patient exhibited none of these symptoms of frontal or other supratentorial involvement. We feel that this patient's tumor was infratentorial.

Infratentorial extracerebellar tumors may also produce ataxia, among these are acoustic neuromas and meningiomas. Though we can not completely rule out certain infratentorial tumors such as meningiomas, we feel that such a tumor was not the seat of this patient's symptoms because they are usually associated with signs of cranial nerve impairment and long tract signs, and we feel we have a better explanation of this patient's symptoms.

For practical purposes it may be said that there are two characteristic cerebellar tumor syndromes which are seen clinically: that of the vermis and that of the hemisphere. In lesions of the vermis truncal ataxia occurs frequently and incoordination of the extremities, especially the hands and arms, is infrequent. Symptoms arising from obstructive flow of cerebral spinal fluid usually occur early and abruptly. From the signs and symptoms of the patient it would appear that the lesion was not in the vermis.

Tumors arising from the cerebellar hemispheres may produce symptoms from impairment of function of the hemisphere, from obstruction of the flow of cerebral spinal fluid, and occasionally from compression of the brain stem. Symptoms of hemispheric involvement are ipsilateral and often not severe. Ataxia, atonia, nystagmus, and tremor are often minimal. The patient often delays in seeing a physician until increased cranial pressure makes itself apparent. Vomiting is therefore the most frequent symptom and headaches the second most frequent. Also occurring is ataxia which predominates in the ipsilateral extremities, the hand being more affected than the leg, whatever the region of the hemisphere involved. Romberg's sign may or may not be present. Nystagmus, though usually present, may be absent. Astrocytomas comprise 70 per cent of all tumors in the cerebellar hemispheres. Sarcomas, hemangioblastomas, ganglioneuromas, and metastatic tumors also occur in this area. The age of the patient and the duration of the symptoms are valuable aids in distinguishing the type of tumor. Astrocytomas, sarcomas, and ganglioneuromas occur predominately in children and young people. We therefore consider their occurrence in a 55-year-old man as improbable. We cannot rule out metastatic tumor, but we consider it unlikely in view of lack of demonstration of a primary site. Symptoms of hemangioblastoma of the cerebellum may develop at any age. They most commonly appear in the fourth to the sixth decades. Headaches and choked discs are

the most common clinical features. Polycythemia is frequently associated with hemangioblastomas. Therefore, we feel that this patient's symptoms of intracranial dysfunction can best be attributed to the presence of hemangioblastoma of the right cerebellar hemisphere. Having thus postulated the existence of such a lesion, we are still at a loss to explain the patient's lower motor neuron involvement as manifested by absence of the right biceps reflex, atrophy of the intrinsic muscles of the right hand, and weakness of grip of the right hand, together with the sensory changes described. We feel obliged to postulate the presence of a second lesion to explain these signs.

The motor signs described indicate involvement in areas of distribution of C-6 to T-1. Lower motor neuron involvement in these areas may be due to lesions in the spinal cord, nerve root, or brachial plexis. We rule out nerve root or brachial plexis lesions because they would exhibit weakness or other signs of motor impairment of more widespread distribution than the upper extremities. Peripheral nerve involvement, such as polyneuritis and polyradiculitis, produce symptoms of lower motor neuron involvement with sensory distribution or a sensory deficit of long glove distribution. Although we cannot completely rule out such entities, the absence of tropic cutaneous changes and of muscle and nerve tenderness we can consider them as unlikely causes of these symptoms.

We choose to explain this patient's motor signs on the basis of a cord lesion in the area of C-6 to T-1. The absence of right biceps reflex without associated motor weakness or sensory impairment in the upper extremity would argue in favor of a cord lesion. Sensory impairment of all modalities of the right hand of long-glove distribution would involve only the sensory distribution of C-6, 7, 8, and T-1. If the lesion were placed at any point on the nerve root or further distally there would be, in all probability, loss of proprioception and stereognosis. If these latter were preserved this would also tend to locate the lesion in the spinal cord in the area from C-6 to T-1 in the right inferior lateral area of the cord. Angioblastic tumors of the brain stem or the spinal cord may be associated with cerebellar angioblastomas, but syringomyelitic cavitation of the cervical cord and medulla is also occasionally present. We rule out cervical syringomyelia because it is usually associated with bilateral segmental signs. An angioblastic tumor in the already described area of the cervical cord could account for this patient's symptoms. We cannot rule out the other intra- or extramedullary space-occupying lesions of the spinal cord.

In summary we feel that our patient had a hemangioblastoma of the right cerebellar hemisphere with an associated lesion in the spinal cord that could be a hemangioblastoma also.

Dr. Delp: Thank you Mr. Davis. Are there any second diagnoses or possibilities?

Mr. Cordova: Meningioma is possible.

Mr. Beggs: I think that metastatic tumor is also possible.

Mr. Breckbill: Astrocytoma is possible.

Mr. Davis: Metastatic tumor.

Dr. Delp: All right. Now there are a couple of things I want you to explain to me. They have to do with the findings in this patient. First of all, I would like to have some pertinent comments with regard to this hemoglobin of 18.9 grams. Mr. Cordova?

Mr. Cordova: The exact cause is not really known, but polycythemia and hemangioblastomas of the cerebellum are found to be associated. I don't think that this man had significant pulmonary disease because of the normal x-rays and the normal arterial oxygen. I do not think that this was a polycythemia vera because there was not an increase in all the formed elements of the blood, there were no immature forms of the white blood cells, there was no associated hepatomegaly or splenomegaly, and there was not what I would consider to be a significant increase in blood volume.

Dr. Delp: Mr. Davis?

Mr. Davis: Erythrocytosis is commonly associated with hypernephroma. In view of this patient's elevated blood pressure I would consider this as a possibility.

Dr. Delp: Three histories were taken on this patient. I found some variation in comments regarding his blood pressure, but it seems quite certain that at times this man had hypertension. Would you comment, Mr. Cordova?

Mr. Cordova: There can be an increase in blood pressure with associated increased intracranial pressure. The exact cause is not known, but it is thought to be a reflex mechanism.

Mr. Beggs: The cerebellar hemangioblastomas have also been described with hypernephromas of the kidney, and this could cause an increase in blood pressure. They are also described wih pheochromocytomas, and that might account for both the hypertension and the abnormal glucose tolerance curve.

Dr. Delp: Four years before this patient came into the hospital he fell from one of his neighbor's wagons, falling about six feet, landing on his back, back of his head and his right shoulder. Does this have any relationship to his present situation, Mr. Cordova?

Mr. Cordova: He may have had early tumor at that time, and he might have been ataxic.

Mr. Beggs: Sometimes patients will associate the

onset of symptoms with certain specific events, and it might be due to this.

Dr. Delp: Two months after that fall, or certainly within four months, he began to have difficulty with his right arm. Does this suggest anything, Mr. Cordova?

Mr. Cordova: Well, if this lesion is in the right cerebellar hemisphere, one of the commonest and earliest symptoms of this is associated upper extremity ataxia.

Dr. Delp: Mr. Caple?

Mr. Caple: I think you might consider the fact that he might have some associated bony pathology of his spine, or a disc in this area as a result of his fall, but I think these are unlikely because these symptoms are made worse by coughing, sneezing, and movement of the neck.

Dr. Delp: I also wanted to ask you about this glucose tolerance test. Does anyone have a quick answer?

Mr. Caple: It might be a primary disease process in this gentleman, although there is no family history.

Dr. Delp: What do you think was the immediate cause of his death?

Mr. Davis: Probably an air embolism.

Mr. Cordova: Possibly hemorrhage.

Mr. Davis: I think a pulmonary embolism is possible.

Mr. Breckbill: I think of air embolus.

Dr. William P. Williamson (neurosurgeon): The students should be congratulated for they did far better than we. This man was a clinical puzzle to locate his lesion neurologically because of the peculiar type of disability he had in only one extremity. He was hard to examine because he was dull and confused, and his responses were not reliable. There were elements of spasticity in the right hand. There were some elements of rigidity. There were some cerebellar elements in it. And, frankly, these "lower motorneuron" signs were so minimal that the staff tended to ignore them. After we wrote it out in the protocol it looked a lot simpler than it was.

It was clear that he had a brain tumor, and the brain scan and arteriograms located it in the cerebellum. With the blood findings we felt it was a hemangioblastoma, and preparations were made for study of this particular type of tumor histologically. We were concerned about one spot that was not pointed out on the arteriograms. The brain scan and the arteriograms showed a lesion in the region of the tentorium, and the carotid arteriograms showed that it received at least part of its blood supply from the posterior cerebellar artery, which is supratentorial. Our technical concern as surgeons, was whether the tumor was above the tentorium or below, and brought up the clear question of tentorial meningioma. We could not account for all the neurological signs on a pure cerebellar lesion, and we, too, thought there must be multiple lesions. We could not, however, find other cerebral lesions on the scan or arteriograms. We then conceived that the tumor might be in the tentorial notch compressing the brain stem and giving some bilateral signs and some pyramidal tract signs. We thought that the mental confusion was due to the hydrocephalus. So tentorial meningioma was a distinct possibility.

The tumor was removed surgically, and his postoperative course was not at all clear. The operation went well. Immediately postoperatively he was fine—without signs of surgical damage to this area of the brain. Changes in his blood pressure were rather striking, but appeared to be due to increased intracranial pressure since they were relieved by tapping the ventricle. We reopened the wound thinking that he might have a postoperative clot, but none was present. The exact cause of his death was not apparent to us at the time.

Dr. Delp: Dr. Wilson, will you comment about this hemoglobin?

Dr. Sloan J. Wilson (hematologist): The time has long past when a C.P.C. is purely an anatomic exercise. There are such things as disturbed physiology, and tumor masses may act as endocrine organs. We see tumors of the lungs, for example, that may cause conditions that have the appearance of being hyperparathyroidism. This is another type of tumor mass which form some type of material which acts as erythropoietin. And so the diagnosis of polycythemia vera is getting to be a diagnosis that is becoming most difficult. We know that there are tumors that apparently can form a substance that is, or is like, erythropoietin, and this is probably what happens in these people. This can happen in hypernephromas and in fibromyomata. It has been reported with hamartomas of the liver, and with many other tumors.

Dr. Delp: Dr. Steegman, do you have any comment about this patient?

Dr. A. Theodore Steegman (neurologist): I have only one comment to make and that is that, since we think of tumors ordinarily as progressive, there has been some interest in why certain individuals who have brain tumors may have a fluctuation in their course—even getting better. It has been definitely shown that those types of tumors that produce a cyst type of cavity filled with fluid are often fluctuating in their size and therefore produce clinical symptoms that fluctuate. Therefore, tumors such as some of the astrocytomas that have cystic areas, as well as the hemangioblastomas, belong to this group.

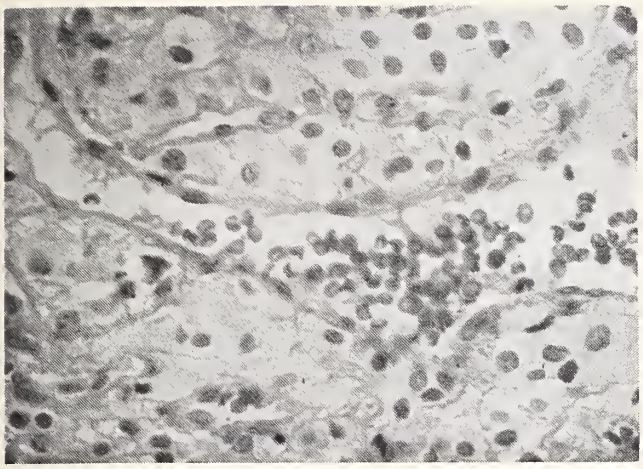


Figure 2a. Portion of the cerebellar hemangioblastoma showing capillary and plump "epithelioid" perivascular histiocytes with clear cytoplasm (H & E).

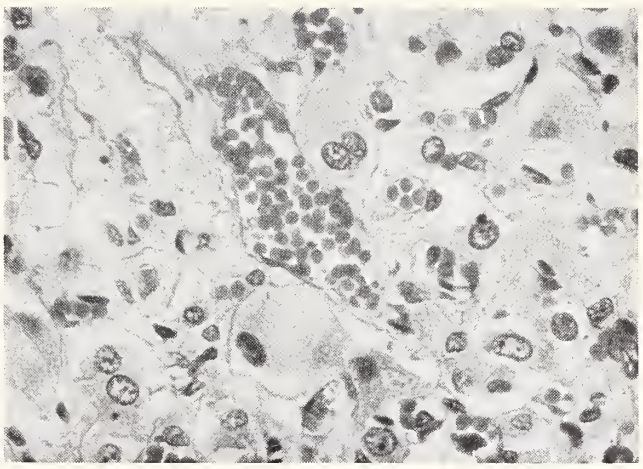


Figure 2b. Another area of the same tumor with moderate pleomorphism of perivascular foamy histiocytes. A binucleated cell is present in the upper center field (H & E).

Report of the Pathologist

Dr. John Kepes (pathologist): I want to congratulate the students. Theirs was a very good analysis, and all I can do is confirm their findings. I also have to express my gratitude to the neurosurgeons for having made the diagnosis before the operation, thus having enabled us to make some preparations for biological assays.

At the time of the autopsy we found that the tumor had been completely removed. There were no remnants in the cerebellum either grossly or microscopically. A microscopic slide of the tumor *(Figure 2a),* made from the surgical specimen, shows a capillary hemangioma. We can see congested capillaries, endothelial cells, and between the capillaries, some epitheloid looking cells that are probably histiocytic in nature. There are also other areas in the tumor *(Figure 2b)* where these interstitial cells lying against the capillary wall on the outside predominate. They actually look like epithelium, more specifically they closely imitate tumor cells of a hypernephroma. This may be more than an incidental similarity. There are some strange connections between this tumor in the cerebellum and tumors of the kidney. The morphological similarity is only one of them. The other connection was mentioned by Dr. Wilson, namely, that many hypernephromas produce an erythropoietic factor and so do many hemangioblastomas. The third connection that the students mentioned is that, in many patients who have a hemangioblastoma in the cerebellum, there is also often a cyst or solid tumor in the kidney. It may even be a malignant hypernephroma. There are about 19 cases on record where the simultaneous existence of these two lesions occurred.

One term sometimes used for this tumor, particularly in older textbooks, is angioreticuloma due to

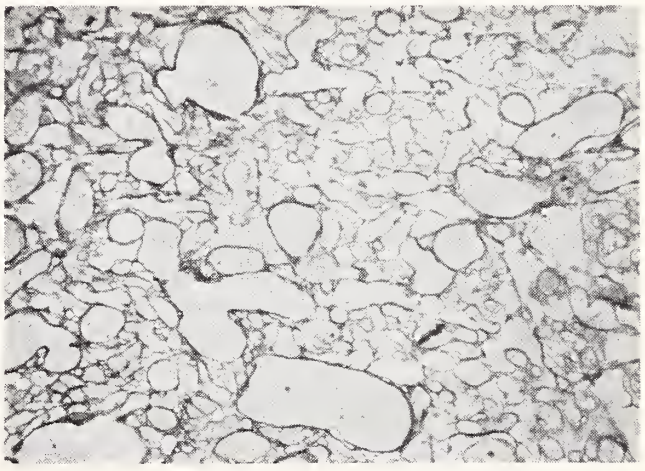


Figure 2c. An area of the cerebellar tumor showing a rich reticulin network outlining the vessel walls (Wilder's reticulin impregnation).

the fact that this tumor has a very rich reticulum network as seen in *Figure 2c.*

What is the histogenesis of this particular tumor? It is thought by most people to be congenital in nature: Some time during the fetal development, around the third month, there exists a very vascular mesenchyme, located at the "posterior medullary stria." This apparently may branch into the cerebellar hemisphere, or sometimes into the vermis. At precisely the same time in the embryological development the retina becomes vascularized, and therefore it is not a mere coincidence that many, although not all, of the patients have angiomatosis of the retina.

It is also interesting that the mesenchyme of the pancreas also develops in the third fetal month. In the pancreas of our patient there were several cysts

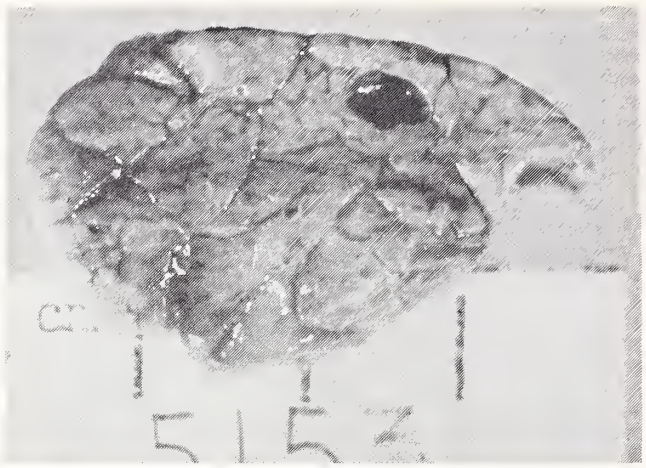


Figure 3. One of the numerous small smooth-walled cysts found in the pancreas.

in the parenchyma *(Figure 3)*. These are usually asymptomatic clinically, but Davidson and Brach described a case about 15 years ago in which the patient actually developed a huge cystadenoma of the pancreas which killed him, and this was clinically in the foreground of the whole complex. The kidney in our case contained no adenoma or hypernephroma, but he did have a cyst in the cortex.

The students were correct in surmising that there was a lesion in the spinal cord. The yellow color in the cervical cord around the sixth and seventh cervical segment indicated the presence of the tumor. The yellow color of the growth is due to the lipids that could be seen in those large interstitial cells. *Figure 4* shows it from the surface on a close-up view. The cross section *(Figure 5)* shows the tumor in a rather typical location, close to the posterior midline of the cord. It is this very area that is last to undergo fusion when the medullary tube closes. It is held by many people that these tumors are

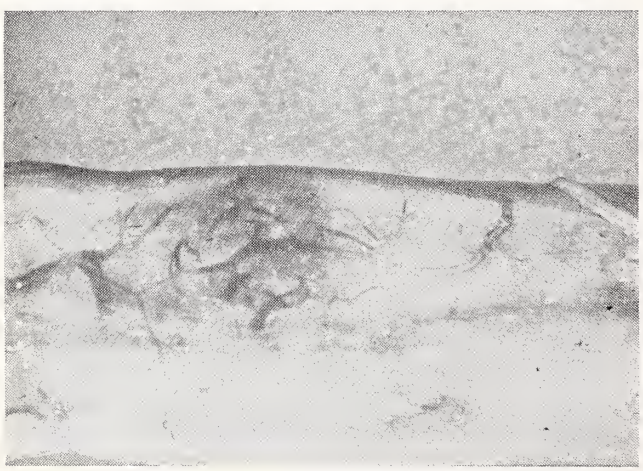


Figure 4. A second tumor found in the dorsal aspect of the cervical cord. Note increased vascularity of meninges overlying the tumor nodule.

really related to a malclosure of the spinal cord, and it is not surprising, therefore, in tumors like this to find associated syringomyelia. At this point I have to disagree with the students who denied this possibility.

Figure 6 pictures a syrinx which was associated with the lower end of the tumor. And, interestingly, some people, Lindau for example, who first described the entity, felt that the syrinx in the cord is actually the equivalent to the cyst in the brain. In other words, there is a cystic hemangioblastoma in the cerebellum and there is a cystic hemangioblastoma in the cord, and the cyst of the tumor is the syrinx. This probably is not quite correct because there are a number of cases reported that have the syrinx in the cerebellar lesion but lack the spinal cord tumor. The probable reason why the students figured that

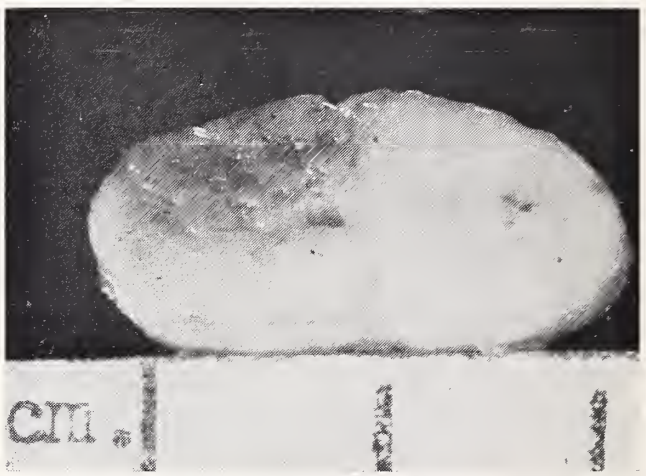


Figure 5. Section through the cervical cord reveals a dark, vascular tumor nodule.

this was not a syrinx is that most of the syrinxes are in the midline and affect both sides. This is undoubtedly a unilateral syrinx.

There was a little surprise at the time of the autopsy. We found a rather large mass in the right adrenal gland, and it had a dark brown color *(Figure 7)*. In view of the patient's episodes of hypertension we felt, on gross examination, that this patient may have had a pheochromocytoma. There are cases of pheochromocytomas reported in the Lindau syndrome, but we were wrong in this case, the lesion was not a pheochromocytoma microscopically. Histochemistry on this case did not reveal any chromaffin material. The brown color was due to iron pigment from old hemorrhages. We were lucky enough to have the help of Dr. Kurt Reissman in analyzing the cyst fluid in this case. The cyst fluid in this particular patient, taken from the cerebellar tumor, contained thirty units of erythropoietin per cubic centimeter.

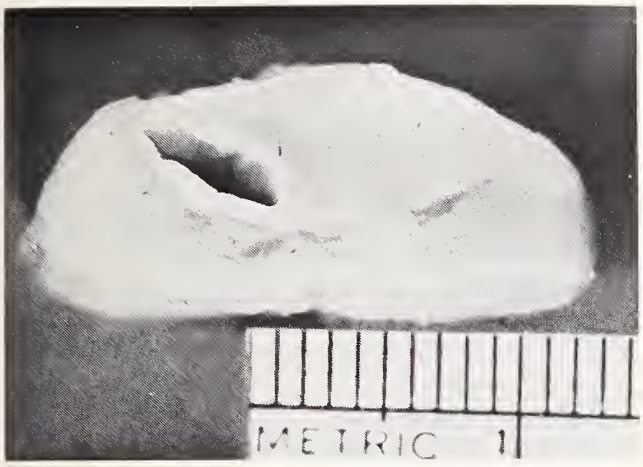


Figure 6. At levels below the tumor mass but in the same area of the cord syringomyelia is noted.

Dr. Delp: I think everything about this case has been well exposed, and I do agree that it is a good case and needs to be presented many, many times. The Department of Medicine is very proud of the work that Dr. Kurt Reissman is doing on erythropoietin in his laboratory.



Figure 7. A highly vascular dark tumor occupies the upper pole of the left adrenal gland. Histologically this tumor too was a hemangioblastoma.

Anatomical Diagnosis

Primary

Lindau Syndrome.

Hemangioblastoma of cerebellum.

Syringomyelia, lower cervical cord.

Multiple small cysts of the body and tail of pancreas.

Thin walled cysts of the kidneys.

Edema and swelling of cervical spinal cord, marked.

Diffuse focal subarachnoid hemorrhages of the brain.

Bronchopneumonia, bilateral, moderately advanced.

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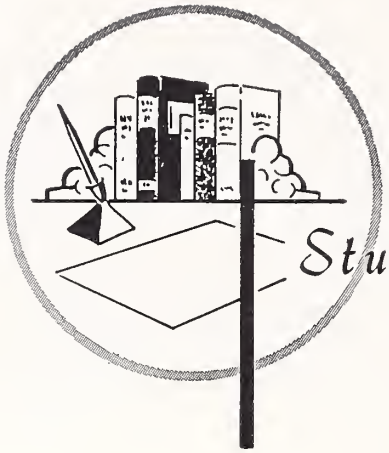
"HORIZONS UNLIMITED"

A new film depicting the wide range of rewarding career opportunities existing in fields allied to medicine, long sought by auxiliaries and others concerned with health careers programming, is available for bookings.

The 28-minute color film, entitled "Horizons Unlimited," after the AMA's health careers handbook of the same name, gives brief on-the-job glimpses of men and women serving in career pursuits highlighted in the publication. To give viewers greater insight as to the length of preparation and particular scope of specific professions and occupations, "thought voices" are utilized in some segments of the film.

The University of Kansas Medical Center, Kansas City, served as the setting for the film, which will replace the time-dated film, *Helping Hands For Julie,* developed by the AMA in cooperation with E. R. Squibb & Sons, in 1959.

The new film was developed solely by the AMA. Physicians, medical societies and other medical groups should place their orders for showings, stating preferred and alternate dates, with the Films Section, AMA, 535 North Dearborn, Chicago, Illinois 60610. Schools and other non-medical groups should direct their requests for loan of the film to Modern Talking Pictures, Prudential Plaza, Chicago, Illinois 60601.



Student THESIS

The Roentgenologic Diagnosis of Emphysema: Correlation With Selected Pulmonary Function Studies

ROBERT N. HILL, M.D.,* ***Baltimore, Maryland***

THE TERM "EMPHYSEMA," as first used by Laennec in 1821, denoted an alteration in lung architecture. Although Laennec made reference to certain physical findings which he noted in patients with this disease, he emphasized that the term be applied to postmortem anatomical findings. Over the last 150 years many physicians have noted various features of the clinical history, physical examination, and more recently abnormalities in radiologic and pulmonary function findings, which have been proposed as clues to the antemortem diagnosis of pulmonary emphysema.

A history of unrelenting dyspnea in a middle-aged male, unrelated to primary myocardial disease, with or without cough and sputum production, stands today as a primary clue to the diagnosis of emphysema.

Various physical findings have been reported as important characteristics of emphysema, including the "barrel-chest" deformity, hypertrophy of the pectoralis and sterno-mastoid muscles, hyperresonant percussion note, reduced area of cardiac dullness, feeble breath sounds, prolonged expiratory phase, and a host of other signs. These findings are often seen in patients with emphysema, but have more recently been given less prominence because many other conditions may produce them, and because they are usually prominent only in advanced and long-standing disease.

Approximately 25 years ago clinicians and pulmonary physiologists began focusing interest on abnormalities in pulmonary ventilatory function in emphysema, such as reduction in vital capacity, forced expiratory volume, breathing capacity, as well as alterations in static lung volumes, intrapulmonary gas mixing, mechanical properties of the emphysematous lung, blood-gas levels, ventilation-perfusion ratios, and diffusion capacity measurements.

In the early 1950's interest was renewed in a more critical appraisal of the radiologic criteria for the diagnosis of emphysema. Various x-ray "signs" of emphysema have been described, and will be discussed at greater length in following paragraphs.

It is apparent that there are several approaches to the antemortem diagnosis of emphysema. Clinicians, radiologists, and pulmonary physiologists have developed, unfortunately along separate lines, different criteria for making this diagnosis. To confuse matters further, recent developments in the technique of postmortem examination of lungs have cast doubt on the validity of any of the clinical criteria for diagnosing emphysema. A technique developed by Gough and others, whereby the entire cross-section of a lung is examined in close detail, has led many investigators to doubt that an antemortem diagnosis should even be attempted. This attitude is reflected in the definition of emphysema by the Committee on Diagnostic Standards of the American Thoracic Society: "Emphysema is an anatomic alteration of the lung characterized by an abnormal enlargement of the airspaces distal to the terminal non-respiratory bronchi-

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Hill is now interning at Baltimore City Hospital, Baltimore, Maryland.

ole, accompanied by destructive changes of the alveolar walls."

Efforts to delineate certain features of the clinical history, physical examination, and especially pulmonary function and radiological examination, have persisted despite the limitations imposed by a purely morbid-anatomical definition of this disease. Now that the anatomical abnormalities in emphysema have been more thoroughly and critically defined, there has been renewed interest in developing clinical criteria, based on postmortem anatomical studies, which can be used to make a pre-mortem diagnosis. This paper will be limited to the radiologic assessment of patients thought to have emphysema, with emphasis on correlation between radiologic and certain pulmonary function criteria.

Chest x-rays were compared with physiologically assessed emphysema by Whitfield *et al.* in 1951, who concluded that "although radiography may be invaluable in ascertaining the cause of emphysematous change, the degree of emphysema can be assessed much more accurately clinically and spirometrically than radiologically." Knott and Christie compared x-ray appearances with clinically assessed emphysema and concluded that a radiological diagnosis of emphysema based a single posterior-anterior film on full inspiration was of doubtful significance. Simon and Gailbraith also compared x-ray appearances with clinical findings, and stated that when a number of radiological features suggestive of emphysema were present together, there was a direct correlation between the degree of dyspnea, judged clinically, and the radiological changes. In these studies the presence or absence of emphysema was based on clinical and simple physiological assessment.

Recently, two studies have been done comparing x-ray findings with pathological data—the whole-lung technique of Gough. Laws and Heard, using whole-lung formalin fixed specimens, compared the degree of anatomical emphysema with certain chest x-ray findings. Radiological assessment was in terms of the following criteria:

1. *Changes in the thoracic cage:* horizontally inclined, widely spaced ribs, kyphosis and bowing of the sternum.
2. *Diaphragmatic abnormalities:* low position, flattening, visibility of the muscular insertions, tenting or other deformity of the diaphragmatic domes.
3. *Heart:* narrow "hanging heart" shadow, with air visible between the apex of the heart and the diaphragmatic domes; prominence of the main pulmonary artery or enlargement of the right ventricle.
4. *Pulmonary vascular pattern:* reduction in the caliber and number of the peripheral branches of the pulmonary artery in the outer half of the lung field, when compared with radiographs of normal persons.
5. *Hypertransradiancy:* of two types; (1) hypertransradiancy with a normal arterial pattern and (2) a homogeneous hypertransradiancy in which the very small vascular shadows in the background of the lung are absent or reduced.
6. *Bullae:* a bulla was thought to be present when a localized transradiant area with a white hair-line margin was seen.

Although detailed data concerning this group of patients is not presented, Laws and Heard conclude that the most reliable sign of pulmonary emphysema is to be found in the radiologic appearance of the pulmonary arteries. Narrowing and straightening of the pulmonary arteries, with a uniform caliber for several centimeters, instead of tapering towards the periphery, and hypertransradiancy are mentioned as reliable signs of advanced anatomical emphysema. Mild to moderate degrees of emphysema could not be reliably detected using the above criteria.

Sutinen, Christoforidis, Klugh, and Pratt have recently published a similar study correlating the roentgenological interpretation with the results of structural studies of lung pathology. As a result of a review of the full-inspiration P-A and lateral chest x-rays of the 60 patients in their study, four "cardinal criteria," hereafter referred to as the "Pratt criteria," were selected:

1. Depression and flattening of the diaphragm with blunting of the costophrenic angles; the actual level of the diaphragm is not as significant as the contour.
2. Irregular radiolucency of the lung fields.
3. Abnormal retrosternal space—2.5 cm. or more between the anterior margin of the ascending aorta and the sternum.
4. The presence of a 90-degree or larger sternodiaphragmatic angle.

The diagnosis of emphysema was made when the roentgenograms revealed any two or more of the criteria. Thus the patients were divided into two groups —"normal" and "emphysematous," and comparisons were then made with the results of whole-lung pathological studies.

Of the lungs classified structurally as normal (33) none were diagnosed "emphysematous" radiologically. Of those diagnosed as "normal" radiologically, six were structurally emphysematous. Thus there were no "false-positive" cases of emphysema diagnosed radiologically, and only six (10 per cent) "false-negatives."

Because the use of these criteria for evaluation of the chest-film appeared promising, a further study was undertaken to correlate the criteria with the results of pulmonary function studies.

Method

The pulmonary function studies for all patients examined in the University of Kansas Pulmonary Func-

tion Laboratory for the last one and a half years were reviewed. Since previous studies correlating various pulmonary function parameters with pathological findings have revealed that the residual volume/total lung capacity ratio is a fairly reliable indicator (correlation coefficient +.80) of anatomical emphysema, this parameter was used to divide patients into two categories: "normal"—those patients with an RV/TLC ratio of 30 or less, and "abnormal"—those with an RV/TLC ratio of 40 or greater.* Sixty-three patients who fell into the "normal" category were selected. After review of hospital charts and x-rays, 24 were excluded from the study group for the following reasons: x-rays not available, previous lung resection, severe rheumatic heart disease, pneumonia at the time of pulmonary function study, chart not available, massive atelectasis, large tumor mass or obvious tracheo-bronchial obstruction, marked chest-cage deformity—kyphosis, thoracoplasty, etc. Thus 39 patients remained in the "normal" RV/TLC group. Seventy patients with RV/TLC ratios above 40 were also selected and after excluding patients for similar reasons, 54 remained.

Results and Discussion

All chest films were then reviewed, using only those films made within two weeks of the time the function studies were done. *Table 1* summarizes some of the characteristics of the two groups. The figures below are averages for the two groups.

TABLE 1

	"Normal" RV/TLC BELOW 30	*"Abnormal"* RV/TLC ABOVE 40
Avg. age, years	53	58
Avg. height, inches	67.5	67.5
Predicted residual vol.	1.49 L	1.55 L
Measured residual vol.	1.50 L	3.51 L
Predicted total lung cap.	4.87 L	5.31 L
Measured total lung cap.	5.57 L	6.40 L
Predicted RV/TLC ratio	29	29
Measured RV/TLC	27	55.7

* Sweet and Wyatt, in correlating RV/TLC ratios with whole-lung sections demonstrated that patients with an RV/TLC ratio below 30 rarely had anatomical evidence of emphysema, while those with an RV/TLC ratio above 40 often had anatomical evidence of emphysema. The range between 30 and 40 was the "gray" area. For purposes of this investigation, patients falling into this range were therefore excluded.

Table 2 summarizes the distribution of the Pratt criteria in both groups.

TABLE 2

Pratt Criteria	*"Normal"* RV/TLC BELOW 30 pts.	*"Abnormal"* RV/TLC ABOVE 40 pts.
1. Aortic-sternal distance greater than 2.5 cm.	13 (33%)	48 (90.5%)
2. Sterno-diaphragmatic angle greater than 90	8 (20%)	33 (62.2%)
3. Diaphragmatic flattening	7 (17%)	27 (50.9%)
4. Irregular radiolucency	1 (2.5%)	23 (43.3%)
No. of patients in group	39	54

Table 3 summarizes the distribution of the number of Pratt criteria for the two groups.

TABLE 3

Number of Pratt Criteria	*"Normal"* RV/TLC BELOW 30 pts.	*"Abnormal"* RV/TLC ABOVE 40 pts.	
None	17 (43.5%)	3	
87%			
One	17 (43.5%)	8	
Two	3	13	79.2%
Three	2	18	
Four	0	11	
No. of patients in group	39	54	

From *Table 3* it can be seen that fair correlation exists between the Pratt criteria and grossly abnormal RV/TLC ratios. Eighty-seven per cent of those patients with normal RV/TLC ratios were also judged normal by Pratt criteria, whereas 79.2 per cent of those patients with grossly abnormal RV/TLC ratios were also judged abnormal by Pratt criteria.

On the assumption that the Pratt criteria might correlate even more closely with both an abnormal RV/TLC ratio *and* an abnormal total lung capacity, the two study groups were further broken down into two sub-groups: those with a total lung capacity greater than 20 per cent above predicted and those

with a total lung capacity normal or less than 20 per cent above predicted. Again comparing the subgroups with the presence of Pratt criteria, the following distribution was obtained.

TABLE 4

No. of Pratt Criteria	*"Normal" RV/TLC* TLC LESS THAN 20% ABOVE PRED. pts.	*"Normal" RV/TLC* TLC GREATER THAN 20% ABOVE PRED. pts.	*"Abnormal" RV/TLC* TLC LESS THAN 20% ABOVE PRED. pts.	*"Abnormal" RV/TLC* TLC GREATER THAN 20% ABOVE PRED. pts.
None	16	3	3	1
One	8	7	5	1
Two	1	2	4	9
Three	0	2	7	11
Four	0	0	5	7
Total no. pts. in each group	25	14	24	29
Per cent with less than two Pratt criteria	96	71	33	8
Per cent with two or more Pratt criteria	4	29	67	92

From *Table 4* it is obvious that this maneuver further separates the study population into two distinct sub-groups. Of those patients with a normal TLC and a normal RV/TLC ratio, 96 per cent had less than two Pratt criteria, as opposed to 87 per cent for the same group when only the normal RV/TLC ratio was used. At the same time, of those patients with both an elevated TLC and RV/TLC ratio, 92 per cent had two or more Pratt criteria, as opposed to 79.2 per cent for the same group when only the abnormal RV/TLC ratio was used. It can be further demonstrated that to obtain a clear separation of these two groups with the Pratt criteria, *both* the TLC and the RV/TLC ratio must be used. If the total lung capacity alone is compared to the Pratt criteria, the following distribution is obtained.

By comparing *Tables 3* and *5* with *Table 4* it can be seen that neither the TLC nor the RV/TLC ratio alone compare as favorably with the Pratt criteria as when *both* parameters are used.

TABLE 5

No. of Pratt Criteria	*TLC less than 20% above pred.* PTS.	*TLC greater than 20% above pred.* PTS.
None	19	4
One	13	8
Two	5	11
Three	7	13
Four	5	7
Total no. pts. in each group	49	43
Per cent with less than two Pratt criteria	65.3	28
Per cent with two or more Pratt criteria	34.7	72

Conclusions and Summary

In review, beyond the clinical history and physical examination, there are basically three approaches to the diagnosis of emphysema: (1) x-ray findings; (2) pulmonary function studies; and (3) whole-lung anatomical studies. Until recently these three areas of study have developed more or less independently with few attempts being made to correlate the various abnormalities found within each area of investigation.

Ultimately the diagnosis of pulmonary emphysema is based on a demonstration of altered lung architecture; that is, it is an anatomical diagnosis. However, a careful clinical history, physical examination, combined with physiologic and radiologic data, *based on anatomical studies,* can lead to a reasonably accurate antemortem diagnosis. No one isolated abnormality can be used to make an unequivocal diagnosis of emphysema. The combination of certain clinical, radiologic, and function abnormalities warrants a prediction of the existence of the morphologic lesions of this disease.

The past 15 years have witnessed a reversal of opinion concerning the validity of radiological criteria for the diagnosis of emphysema. It has been demonstrated that selected radiological criteria, based on critical anatomical studies, provide the clinician with a simple, readily available tool for assessing respiratory complaints and making or excluding the diagnosis of emphysema. The radiologic criteria, and as demonstrated, the pulmonary function criteria, do not merely correlate with airway obstruction or hyperinflation, but with actual structural criteria for emphysema.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

KANSAS MEDICAL SOCIETY

Annual Meeting Ramada Inn, Topeka April 28-May 1, 1968

SCIENTIFIC PROGRAM—TUESDAY, APRIL 30

Section A 9:00-10:15 a.m.

Use of Radioisotopes

Michael S. Usher, M.D., Wesley Hospital, Northwestern University, Chicago

Donald Germann, M.D., Department of Radiology, University of Kansas Medical Center

Section B 9:00-10:15 a.m.

Respiratory Problems in the Newborn and Infant

Mieczyslaw Finster, M.D., Columbia University, New York City

Montgomery Hart, M.D., Department of Pediatrics, University of Kansas Medical Center

Section C 9:00-10:15 a.m.

Detection of Cancer in the Physician's Office

Clyde E. Culp, M.D., The Mayo Clinic, Rochester

Lee S. Fent, M.D., Internist, Newton, Kansas

Section D 2:00-3:30 p.m.

Early Management of Severe Trauma

John Ivins, M.D., The Mayo Clinic, Rochester

Alan Thal, M.D., Department of Surgery, University of Kansas Medical Center

Section E 2:00-3:30 p.m.

Medical, Social, Legal and Psychological Aspects of Abortion

Allan S. Guttmacher, M.D., Planned Parenthood/World Population Federation, New York City

The President's Message

DEAR DOCTOR:



While listening to the verbal acrobatics of a nice lady, started by my seemingly innocent question, "What is bothering you?," and trying to interpret her vague symptoms and complaints, I wondered what a computer would do in this situation. Would the reels spin faster or would it simply heat up in frustration and say, "Shucks"? What factors would it miss when it could not hear the timbre of her voice, see the agitation of her fingers, or smell the perfume? Would it know, as I know, of her life with a somewhat incompetent husband?

Perhaps it is heresy to imply, in these decades of sophisticated gadgetry, chemistry, enzymes and crooked chromosomes, that there remains a necessity for astute clinical observation, sympathy and patient empathy. If it is heresy, I plead guilty.

Let us not forget, though present thinking denies the past, that it has been "the practice of the art" which has made our profession great.

Sincerely,



President



Editorial COMMENT

Guideline for Joint Policy Statement on Nursing Service

Prepared and adopted by the Kansas Hospital Association, the Kansas Medical Society, and the Kansas State Nurses' Association

The following policy statement was prepared through joint efforts of committees representing the three state associations mentioned. It was subsequently adopted by the governing bodies of each of the three associations, including the Council of the Kansas Medical Society.

Physicians may wish to organize a local committee, perhaps within their hospital, to implement this program.

Introduction

Efficient and effective health care of people in our present society of fast changing advances in the social and physical sciences, calls for a mutual concern on the part of doctors, hospitals, and nurses. In Kansas this concern has been alive for several years.

Representatives of the Kansas Hospital Association, the Kansas Medical Society, and the Kansas State Nurses' Association have met on several occasions to discuss matters concerned with the quality of patient care. Although these meetings have been held informally and infrequently for several years, a need for a Liaison Committee has been seen. On July 21, 1966, such a committee was formed and held its first meeting at the KSNA office in Topeka, Kansas.

Foreword

Medicine and nursing are two separately recognized professions by law. The distinction between medical and nursing practice as described in the statutes in the abstract appears quite clear; yet the precise lines between the two areas of practice, when specific procedures are considered, are not easy to find.

A few decades ago there would have been very little overlapping in medical and nursing functions. Today the definitive characteristics are not so evident. In some instances, nurses have no question about proper action; in other gray areas, however, they need to know that they are carrying out proper dependent nursing functions and that they have the support of medical and nursing authority.

Problems of practice within the dependent area of nursing functions are best approached by joint study by the professions involved.

Concern for the health and well being of patients is an ethical responsibility which the nurse shares with the doctor and the hospital or other agency. To assume this responsibility and to insure that the highest standards of patient care are maintained, the following material has been developed to serve as a guideline.

Legal Aspects

Certain factors can be defined without question and are self evident. By way of example, without attempting to be complete, are the following:

1. Kansas Statutes Annotated 65-2869. Classes or persons deemed engaged in practice of medicine or surgery:

a. Persons who publicly profess to be physicians or surgeons, or publicly profess to assume the duties incident to the practice of medicine or surgery or any of their branches.

b. Persons who prescribe, recommend or furnish medicine or drugs, or perform any surgical operation of whatever nature by the use of any surgical instrument, procedure, equipment, or mechanical device for the diagnosis, cure or relief of any wounds, fractures, bodily injury, infirmity, disease or illness of human beings.

c. Persons who attach to their name the title M.D., surgeon, physician, physician and surgeon, or any other word or abbreviation indicating that they are engaged in the treatment and diagnosis of ailments, diseases, or injuries of human beings.

2. Kansas Statutes Annotated 65-2872. Classes or

persons not engaged in the practice of the healing arts:

a. Persons rendering gratuitous services in the case of an emergency . . .

b. Persons whose professional services are performed under the supervision or by order of or referral from a practitioner who is licensed under this act . . .

c. Nurses practicing their profession when licensed and practicing under and in accordance with the provisions of Article 11 of Chapter 65 of the General Statutes of 1949, or amendments thereto, and any interpretation thereof by the supreme court of this state. . . .

3. Kansas Statutes Annotated 65-1113.

Definitions. When used in this act:

a. "Board" means the board of nursing.

b. "Practice of nursing." (1) The practice of professional nursing means the performance for compensation or gratuitously, except as permitted by section 65-1124 of the General Statutes of 1949, as amended, of any act in the observation, care, and counsel of the ill, injured, or infirm, or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or the administration of medications and treatment as prescribed by a licensed physician or dentist; requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical, and social science. The foregoing shall not be deemed to include acts of diagnosis or prescription of therapeutic or corrective measures. (2) The practice of practical nursing means the performance for compensation or gratuitously except as permitted by section 65-1124 of the General Statutes of 1949, as amended, of such duties as are required in the care of the ill, injured or infirm under orders as prescribed by a licensed physician or licensed dentist or directions issued by a registered professional nurse, the performance of which requires a knowledge of simple nursing procedures but not requiring the professional knowledge, judgment and skills required for professional nursing.

c. A "professional nurse" means a person who practices professional nursing as defined in paragraph (b) (1) of this section.

d. A "practical nurse" means a person who practices practical nursing as defined in paragraph (b) (2) of this section.

Legally, the registered professional nurses must function in accordance with this Kansas statute.

4. Nurses, although acting upon the prescribed direction of a licensed physician, are nevertheless responsible for their acts in the performance of their professional duties.

5. The nurses are aware of their obligation to themselves, to their profession, to the physician under whose direction they work and to the patient they serve, not to attempt the performance of any professional care which is beyond their skill or understanding.

6. It is the ethical duty of nurses, when directed by a physician to perform a service which is believed to be beyond their skill or understanding, to notify their supervisor or employer. This should be interpreted to mean that a nurse who in conscience feels she cannot perform the service has the right and duty to refuse to do so.

7. The in-service training program is responsible for the additional preparation for unusual or specialized procedures.

State Nursing Liaison Committee

The Joint Committee recommends to its respective organizations that a committee be organized on which shall serve three representatives from each of three organizations and that this committee be given the following charges:

1. To develop and publish appropriate statements of policy designed to assist in the determination of the respective professional responsibilities in patient care and treatment.

2. To encourage organization of a local committee in each health care facility in Kansas to develop statements of policy specifically tailored to the local personnel, facilities and needs for patient care and treatment.

3. To assist local nursing liaison committees in the development of their local statements of policy.

4. To serve as a state-wide co-ordinating and consultant body to the local committees.

5. To recommend to the sponsoring associations amendments to or revisions of these guidelines whenever needed.

Local Nursing Liaison Committees

It is recommended that the local committee of a health care facility have representatives of the professional staff, the department of nursing, the department of nursing education, if any, the administrative staff, and the representatives of those responsible for the in-service training program.

Further, it is recommended that in developing its written policy statement, the local committee take into consideration the following conditions:

1. Specific procedures to be performed by the nurse upon order of a licensed physician or dentist for specific patients.

2. The nurse have competent instruction and training in the procedures to be performed.

3. Competence of a nurse to perform such procedures to be determined by the nursing service department of the facility.

4. The nurse to be trained for giving emergency first aid when required due to the non-availability of a licensed physician or dentist.

5. The local committee not to exercise decision-making powers but to make recommendations for consideration by the appropriate governing authority.



Personalities—IN KANSAS MEDICINE

Evalyn S. **Gendel**, Topeka, has been appointed to the Comprehensive Health Planning Training and Studies Review Committee of the Public Health Service. The appointment, which is for four years, was made by Surgeon General William H. Stewart in December.

F. A. **Trump**, who has been practicing in Ottawa since 1916, announced his retirement the first of January. Dr. Trump, who is 77, stated that he will continue with anesthesia and interpretation of electrocardiograms at Ramson Memorial Hospital, "so that retirement will not become a bore."

C. R. **Svoboda**, Chapman, has been elected chief of staff of Memorial Hospital, Abilene. Other officers elected for 1968 are J. M. **Mohler**, vice president, and D. C. **Rorabaugh**, secretary-treasurer, both of Abilene.

Alfred H. Hinshaw, formerly of Wichita, has been appointed director of the southwest sector of the Kansas Regional Medical Program. His appointment became effective the first of January. Prior to accepting the position with the Regional Medical Program, Dr. Hinshaw was chief of staff at the V. A. Hospital in Dallas, Texas.

James H. **Coffman**, Oberlin, has accepted a residency at the University of Kansas Medical Center, where he will work toward a specialty in radiology.

Appointments to the State Board of Social Welfare's health advisory committee, announced by Governor Docking in January, include **Theodore Young** and **Patricia Schloesser** of Topeka; **Calvert J. Winter**, Kansas City, and **F. P. Wolff**, Pratt.

James B. **Degner** recently moved from Wichita to Great Bend, where he will serve as a radiologist at the Central Kansas Medical Center.

E. Raymond **Gelvin** of Concordia has been chosen to appear in the 1967-68 edition of "Outstanding Personalities of the West and Midwest."

In December, **Clarence H. Benage** of Pittsburg, was named by Governor Docking to serve on the Kansas Advisory Hospital Council.

Among the Kansas Heart Association delegates who attended the meeting of the American Heart Association held in San Francisco in November were **Dwight Lawson**, Topeka, and **David Lukens**, Hutchinson.

New officers of the Olathe Community Hospital staff for 1968 are **John Beeks**, president; **Robert Twinem**, vice president and **George Pierron**, secretary-treasurer. **Robert Delphia** and **Harry Neis** are members of the credentials committee.

W. N. **Haffner** of Augusta was appointed health officer of the Butler and Greenwood Bi-county Health Department at a meeting of the Board of Health held in El Dorado in January.

A grant to further the study of factors affecting the responses of drugs has been awarded KUMC by the U. S. Public Health Service. In announcing the grant, **George A. Wolf, Jr.**, dean and provost, stated that the funds will establish a Pharmacology-Toxicology Center which will be a national resource for training researchers, investigating chemicals and disseminating information to practicing physicians. **Daniel L. Azarnoff** is director of the program. Dr. Azarnoff is the author of the CP + T Newsletter, a new monthly feature in the JOURNAL.



Book REVIEWS

MANUAL OF PREOPERATIVE AND POSTOPERATIVE CARE by The Committee on Pre and Postoperative Care of the American College of Surgeons. W. B. Saunders Company, Philadelphia, 1967.

This book is written by experts. The 30 contributors are indeed a high-powered group. Twenty-six of them have the rank of full professor. The title "Manual" is somewhat misleading because the 500 pages contain more than directive outlines. It is easy to read. The headings and subheadings are printed in bold face. The over-all organization is excellent and covers all major subjects. With this complete coverage there is also an amazing wealth of detailed information. Basic physiology is always emphasized in the approach to a problem. Discussion and controversy are avoided. References are limited to the important source material. I feel the authors and the Editorial Subcommittee, together with the Committee of the American College of Surgeons, have succeeded in an outstanding manner in their aims, as they are stated in the introduction:

The purpose of this "Manual of Preoperative and Postoperative Care" is to provide a useful outline for modern methods of handling the major problems of preoperative preparation and postoperative management of patients undergoing both elective and emergency surgery. It is intended to provide for the busy clinical surgeon and for the surgical house officer quick and concise access to recent advances in surgical metabolism and nutrition; fluid and electrolyte balance; endocrine, cardiac, respiratory and renal physiology; clotting disorders; infection and shock.

This book should be on every surgeon's active bookshelf.—*P.H.K.*

HEARTS—THEIR LONG FOLLOW UP by Paul Dudley White and Helen Donovan. W. B. Saunders Company, Philadelphia, 1967. 367 pages illustrated. $12.

Envied and misunderstood, a fortunate few live long with a disease, succeed in their lives and thrive in spite of disability. Paul White's book chronicles many types of heart disorders and reports their lives over a span of many years.

This book repeatedly points out the wonderful mechanisms of the human body. It steers away from the majority whose life stops early for one reason or another. It avoids the problems of early and tragic death.

If you get bogged down or doubt your treatment, this book will strengthen you. You read it and see how heart disabilities survive and give tribute to a man and his staff who recorded their progress year after year.—*J.E.C.*

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

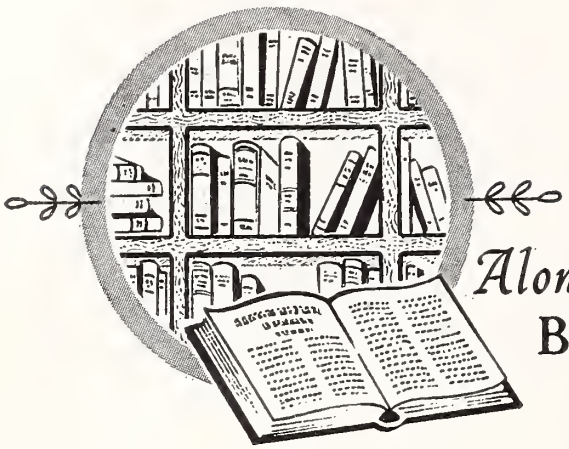
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Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

Abortion: legal and illegal; a dialogue between attorneys and psychiatrists. J. M. Kummer, 1967.

Abramson, David Irvin. Circulation in the extremities. Academic, 1967.

Bailey, Hamilton. Demonstrations of physical signs in clinical surgery. Williams & Wilkins, 1967.

Bailey, Hamilton. Emergency surgery. Williams & Wilkins, 1967.

Baumeister, Alfred A. Mental retardation: appraisal, education and rehabilitation. Aldine Publishers, 1967.

Benack, Raymond T. What is allergy? A guide for the allergic person. Thomas, 1967.

Blum, Eva Maria. Alcoholism; modern psychological approaches to treatment. Jossey-Bass, 1967.

Bourne, Geoffrey H. In vivo techniques in histology. Williams & Wilkins, 1967.

Busch, Harris. Chemotherapy. Year Book Medical Publishers, 1967.

Calne, Roy Yorke. Renal transplantation: with a foreword. . . . Edward Arnold, 1967.

Cohen, Alan S. Laboratory diagnostic procedures in the rheumatic diseases, by 11 authors. Little, Brown, 1967.

Denson, Kenneth William Ernest. The use of antibodies in the study of blood coagulation. F. A. Davis, 1967.

Expenschade, Anna S. Motor development. Merrill Books, 1967.

Federman, Daniel D. Abnormal sexual development; a genetic and endocrine approach to differential diagnosis. Saunders, 1967.

Fish, Frank James. Clinical psychopathology: signs and symptoms in psychiatry. Wright, 1967.

Gibson, Robert W. Crosscurrents in psychiatry and psychoanalysis. Lippincott, 1967.

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Hawkins, Clifford F. Speaking and writing in medicine. Thomas, 1967.

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Krasnoff. Computers in medicine; a primer for the practicing physician. Thomas, 1967.

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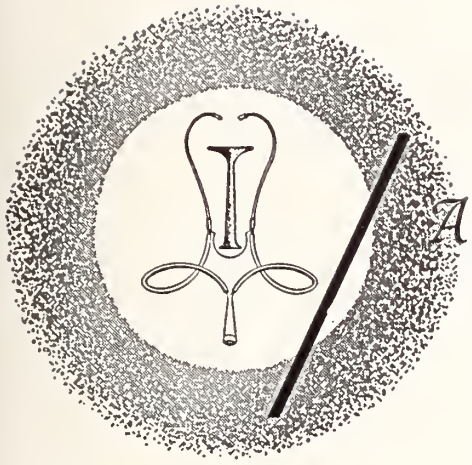
Raven, Ronald William. The prevention of cancer. Butterworths, 1967.

Shearer, William Lete. Oral surgery: cleft palate and lip. North Central Publishers, 1967.

Taylor, R. G. W. Practical cytology. Academic, 1967.

Wallenfels, Herman G. Hearing aids on prescription. Thomas, 1967.

Wolman, Benjamin B. Psychoanalytic techniques; a handbook for the practicing psychoanalyst. Basic, 1967.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

FEBRUARY

Feb. 23 — **American College of Physicians (Kansas Regional), Topeka. Write Sloan J. Wilson, M.D., University of Kansas Medical Center, Kansas City, Kansas 66103.**

Feb. 22-24 — American Academy of Forensic Sciences, Drake Hotel, Chicago. Write S. R. Gerber, M.D., 2153 Adelbert Road, Cleveland 44106.

MARCH

Mar. 15-16 — AMA Council on Mental Health, *Drug Abuse and the Now Generation,* Drake Hotel, Chicago. Write Department of Mental Health, American Medical Association, 535 N. Dearborn, Chicago 60610.

Mar. 15-20 — Second International Congress of Lymphology, Fontainebleu Hotel, Miami Beach. Write Manuel Viamonte, Jr., M.D., University of Miami School of Medicine, 1450 N. W. 11th Avenue, Miami 33136.

Mar. 18 — **AMA lecture on Clinical Nutrition presented by Jack Metcoff, M.D., Kansas State College of Pittsburg, Pittsburg, Kansas.**

Mar. 22-23 — **20th Annual Midwest Cancer Conference, Kansas Division, American Cancer Society, Broadview Hotel, Wichita.**

Mar. 22-23 — Congress on Socio-Economics of Health Care, sponsored by the Council on Medical Service and Division on Socio-Economic Activities of the AMA. Palmer House, Chicago.

APRIL

Apr. 1 — **AMA lecture on Clinical Nutrition by Jack Metcoff, M.D., Kansas State University, Manhattan.**

Apr. 22-24 — American Association of Thoracic Surgery, Pittsburgh-Hilton Hotel, Pittsburgh. Write: Thomas B. Ferguson, M.D., 7710 Carondelet Avenue, St. Louis 63105.

Apr. 26-27 — Kansas Society of Radiologic Technologists, Glenwood Manor, Overland Park, Kansas. Write: Donald L. Blancett, R.T., Providence Hospital, Kansas City, Kansas 66102.

Apr. 28-May 1 — **Kansas Medical Society, Ramada Inn, Topeka**

Apr. 30-May 3 — American College Health Association, Leamington Hotel, Minneapolis. Write: Lee D. Stauffer, Box 9117, Coral Gables, Florida 33124.

POSTGRADUATE COURSES

University of Colorado:

Feb. 20-23 — *Surgery of the Hand*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver 80220.

University of Kansas:

Feb. 19-20 — *Natural History of Congenital and Rheumatic Heart Disease*

Mar. 11-13 — *Pediatrics*

(Continued on page 73)

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in October, 1967 and 1966

Diseases	October 1967	October 1966	October 5-Year Median 1963-1967	January-October Inclusive 1967	January-October Inclusive 1966	January-October Inclusive 5-Year Median 1963-1967
Amebiasis	2	1	2	14	12	14
Aseptic meningitis	—	—	—	7	7	7
Brucellosis	—	—	—	—	9	4
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	6	6	6	20	39	39
Encephalitis, post-infect.	—	—	*	2	—	*
Gonorrhea	364	293	293	3,332	2,669	2,669
Hepatitis, infectious	23	20	24	180	151	219
Meningococcal meningitis	4	1	—	11	15	11
Pertussis	7	—	3	14	11	15
Poliomyelitis	—	—	—	2	—	—
Rheumatic fever	1	1	1	3	1	3
Salmonellosis	13	48	40	182	237	238
Scarlet fever	4	1	4	61	91	84
Shigellosis	7	6	11	47	58	60
Streptococcal infections	262	112	155	2,423	1,911	1,911
Syphilis	154	125	120	1,046	1,044	923
Tinea capitis	4	4	4	48	41	55
Tuberculosis	21	21	21	195	239	221
Tularemia	—	—	—	11	—	4
Typhoid fever	1	1	—	2	7	2

* Statistics for 5-year median not available.

SUMMARY—SUSPECT SMALLPOX CASE CHEROKEE COUNTY, KANSAS

On Monday November 6, 1967, the Epidemiology Section of the Kansas State Department of Health received a call reporting a suspect case of smallpox in Cherokee County. A 26-year-old white male who was a traveling sales representative for a firm in Joplin, but resided in Kansas, had expired the previous evening of an exanthematous disease suggestive of the hemorrhagic form of variola major.

The salesman became ill on November 1 with a low grade fever, myalgia, sore throat, and a very fine maculopapular rash which was generalized but more predominant on forehead and neck. On November 2, he was examined by a physician in Missouri whose clinical impression was an allergy of unknown etiology. He was treated with ACTH, Rondomycin, and was given a prescription of corticosteroid.

Two days later, upon becoming progressively worse, he consulted a physician near his home in Cherokee County. By this time, the skin lesions were definitely vesicular and approximately 4-6 m.m. in size. The lesions were symmetrical and generalized in distribution but more abundant on the face, neck, shoulders and extensor surfaces of the upper extremities. Three palmar lesions were noted. The patient complained that the skin lesions "burned like fire" rather than itched. All lesions appeared to be in the same stage at this time rather than in successive crops. The patient had shaking chills, temperature of 102°F, and complained of generalized aching. On examination he had ulcerative lesions of the soft palate and of the posterior pharyngeal wall. He had a definite shortness of breath but no meningeal signs or symptoms.

Due to lack of adequate isolation facilities at the local hospital, he was not hospitalized. He was placed on antibiotics, aspirin, and told to force fluids. The corticosteroid tablets were discontinued. The patient had never been vaccinated against smallpox (nor had his wife and two small children) and reportedly he had experienced a severe case of chickenpox as a

child. The physician's clinical impression was that smallpox must be ruled out.

The following day, the patient became progressively worse. He complained of severe abdominal pain, was extremely restless, somewhat irrational at times, and "spit up" a small amount of blood. By evening, the patient became severely cyanotic, "vomited" a large volume of blood and expired. Course of illness was five days. No autopsy was ordered and unfortunately the body was embalmed the following morning before laboratory specimens could be obtained. The skin lesions following death appeared to be hemorrhagic in nature with only a few vesicles remaining that could be cultured.

In performing the epidemiological follow-up of this case the following pertinent data were elicited:

Although Rickettsialpox is endemic in this area, no history of tick bites could be elicited and no history of unusual contact with wildlife or hunting of game.

The patient was a sales representative for a sewing machine firm and as such, traveled throughout southeast Kansas and southwest Missouri. The sewing machines were imported from Japan (however Japan has not experienced any smallpox since the Korean War.) No known contact with individuals involved in recent foreign travel could be elicited.

At least one member of his wife's family had a moderately severe herpes infection.

The patient had experienced a spider bite on the forearm three weeks prior to death. This became swollen, reddened, "developed a hard core," and drained for several days before finally healing. No interim symptoms occurred, however, subsequent between this and his terminal illness.

The family's pet cat died the day following onset of illness in this individual. Cause of death was suspected to be Warfarin which the family had used the previous month to eliminate mice. The patient had killed a rat the day before he expired but no known direct contact with rodents could be elicited.

No contact with cattle infected with vaccinia.

Although Coxsackie B5 infections have been quite prevalent throughout Kansas this fall (and his three-year-old daughter was mildly ill concurrently as this individual with low grade fever and a faintly visible rash on cheeks and forehead) stool specimens of family members were negative for the enteroviruses.

No history or clinical evidence of a recent or previous luetic infection was noted.

The specimens obtained from the patient although inadequate, were examined by both the State Public Health Laboratories and the U. S. Public Health Service. Agar jelly diffusion and chick embryo cultures were all negative. Bullet-shaped viral-like particles suggestive of the vesicular stomatitis viral group were noted by fluorescent antibody examination of specimens from the skin lesions.

Two weeks following onset of this patient's illness, his two children, ages three and six years, developed classical lesions of chickenpox. (In view of their recent smallpox vaccinations, V.I.G. was administered to prevent complications.)

In addition, a letter was received at this same time from a housewife in southern Missouri stating that the deceased salesman had visited in her home on October 17, the same day her children came down with chickenpox. This was 14 days prior to onset of his illness. Despite the vague past history of chickenpox, the patient's death is presumed to have been caused by complications of this disease.

Announcements

(Continued from page 71)

Mar. 18-20 *Otorhinolaryngology*

Mar. 25-27 *Surgery*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, 39th and Rainbow Boulevard, Kansas City, Kansas 66103.

University of Nebraska:

Feb. 22-23 *Office Procedures for the General Physician*

Mar. 5-6 *Advances in Medical and Nursing Care of Cancer* (March 6 course at Kearney, Nebraska)

Mar. 21-22 *Abnormal Labor and Practical Endocrinology*

Mar. 28-29 *The Crying Child—Medical Emergency?*

For further information write the Department for Continuing Education, University of Nebraska College of Medicine, Omaha.

Apr. 17-20 12th annual postgraduate course on *Fractures and Other Trauma,* Chicago Committee on Trauma of the American College of Surgeons, John B. Murphy Memorial Auditorium, Chicago. Write: James P. Ahstrom, Jr., M.D., 55 East Erie Street, Chicago 60611.

CANCER IN CHILDREN

A newly released American Cancer Society film for physicians and medical students, describes the significant features of Wilms' tumor, neuroblastoma, intracranial neoplasms, leukemia and rhabdomyosarcoma. Screening of this 27 minute film may be arranged through your local ACS office, or the American Cancer Society, Kansas Division, Inc., 824 Tyler Street, Topeka 66612.

ADDED ATTRACTION!

Kansas Medical Society **1968 Annual Meeting**

April 28-May 1, Topeka, Kansas



GASLIGHT PARTY

Where: Ramada Inn's beautiful ballroom

When: April 29, 1968—Annual Sports Banquet

Who: Doctors and their wives are invited

What: Relive those nostalgic days of the "Roaring Twenties" at this gala event with the flappers and outstanding Dixieland musicians direct from the Gaslight Club in Chicago.

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Tickets—$17.50 each, includes sports fees, dinner and show.

Tickets—$10.00 each, includes dinner and show.

Tickets—$25.00, includes sports fees, and dinner and show for sportsman and wife.

Checks should be made payable to the Kansas Medical Golf Association and sent to the Kansas Medical Society, 315 West 4th Street, Topeka 66603.

KMS Obituaries

JOHN D. McMILLION, M.D.

Dr. John D. McMillion, Coffeyville physician for 43 years, died on December 11, 1967, at Coffeyville Memorial Hospital. He was 73 years old.

Dr. McMillion was born August 18, 1894, at Martin, Tennessee. He attended Vanderbilt Medical School in Nashville, graduating in 1918. He served his internship at General Hospital in Kansas City, Missouri, and upon completion of his training became associated with the Hertzler Clinic at Halstead. He moved to Coffeyville in 1924.

Survivors include his wife, two sons and a daughter.

HARRY LUTZ, M.D.

Dr. Harry Lutz, 78, died at his home in Augusta on December 13, 1967.

Dr. Lutz was born on May 5, 1889, at Logan, Ohio. He received his doctor of medicine degree from the Ohio State University School of Medicine, Columbus, in 1921. He moved to Augusta in 1924, after completing his internship and residency in surgery at Kansas City General Hospital. Dr. Lutz became the medical director of the Bi-County Health Department in 1954, a position he held until his death.

He is survived by his wife and one daughter.

CHARLES D. SHRADER, M.D.

Dr. Charles D. Shrader, 56, died at his home in Salina on December 15, 1967.

He was born on December 5, 1911, at Sawyer, Kansas. He attended the University of Kansas School of Medicine and received his medical degree in 1942. He began his medical practice in Newton, moving to Salina in 1959. He was a veteran of World War II.

Surviving him are his wife, one daughter, three sons, and a brother, Dr. Doyle Shrader of Wichita.

GERALD L. WARD, M.D.

Dr. Gerald L. Ward, 45, Ellis, died on December 14, 1967, at Hadley Memorial Hospital in Hays.

Dr. Ward was born January 11, 1922, at St. John, Kansas. He served with the U. S. Naval Air Force during World War II, and graduated from the University of Kansas School of Medicine in 1953. After completing his internship at Kansas City General Hospital in 1954, he moved to Ellis to establish his medical practice.

Dr. Ward is survived by his wife, three sons and one daughter.

The Kansas Medical Society—1967-1968

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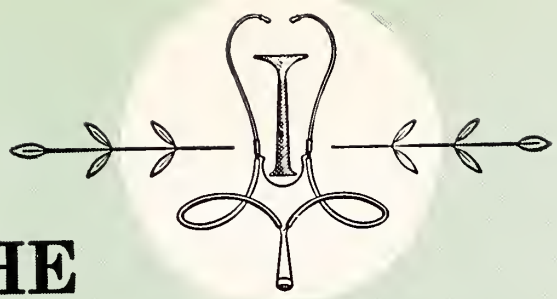
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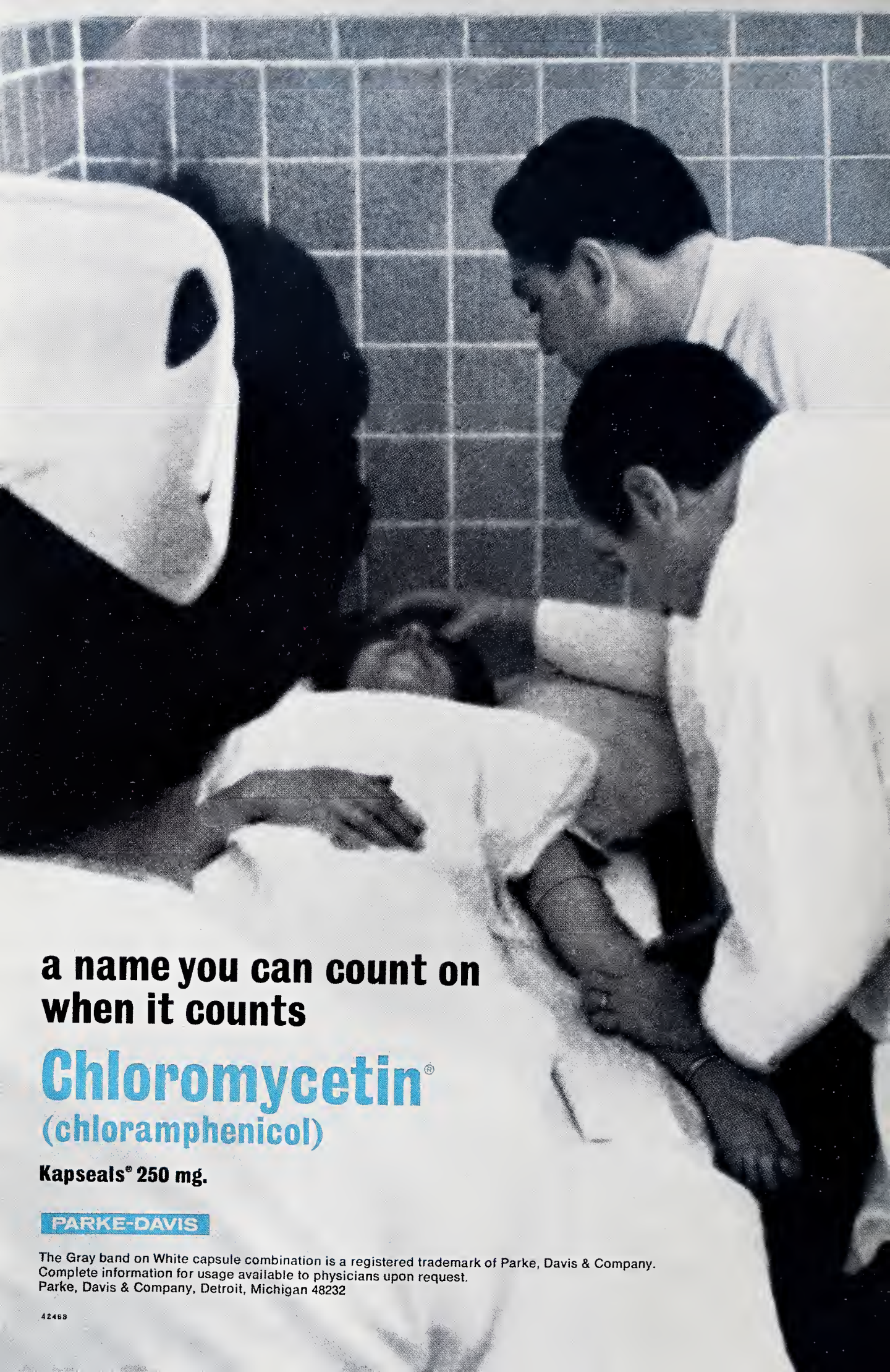


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Volume LXIX, Number 3—March, 1968

The JOURNAL of the KANSAS MEDICAL SOCIETY

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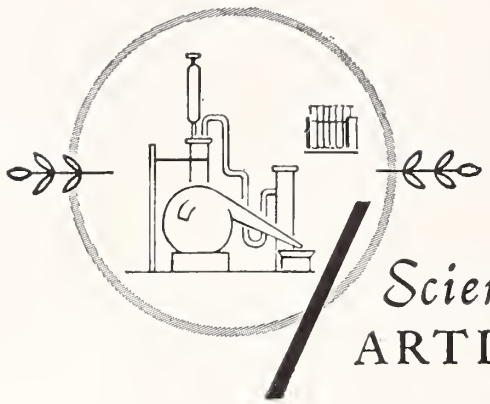
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Twenty-Second Annual University of Kansas School of Medicine Issue



The Dean's Report

The University of Kansas Medical Center

GEORGE A. WOLF, JR., M.D.,* ***Kansas City, Kansas***

IN MY TRAVELS about the state of Kansas I have found a great deal of interest in the University of Kansas Medical Center especially among the physicians of the state. Through visits to county medical society meetings and quick trips by airplane with Bob Neth at the wheel and Jesse Rising at the map, to speak to circuit courses, I have had the opportunity of meeting almost half of the physicians in Kansas.

Since August 1966, when I arrived at KUMC, I, of course, have had to learn a good deal about the physical plant, financing, educational program and other aspects of the Medical Center. It seemed appropriate that I share this information with the physicians in the state, including the newly arrived non-alumni of KUMC who are practicing in the state. Hopefully, then, as we plan for the future we will all have the same basic information.

Before presenting the data about the Medical Center to you, it should be said that I am viewing it from experience elsewhere. The last time I counted I had visited approximately 90 medical schools in this country and abroad since 1952 when I first became a Dean. My travels have taken me coast to coast in this country, over a good part of Canada, as far away as Iran, and throughout much of northern Europe, and as far south as El Salvador. I have served as part of accreditation teams, a consultant, a project site visitor, and simply as a visiting fireman. I recount this only to suggest that opinions expressed about the high quality program at the University of Kansas Medical Center are extended in the light of broad experience and not simply my vested interests in the institution.

* Dean and Provost, University of Kansas Medical Center.

History

The University of Kansas Medical Center started as a fusion of several medical schools which joined together under the University of Kansas. Up until the late 1950's the basic science courses for medical students were given at the University of Kansas in Lawrence and the Medical Center was basically a hospital providing clinical instruction for medical students. The old hospital still exists on the bluff overlooking the Kansas River and is being used by Dr. Herbert Wenner for virological work. Over the years more health professional students were taken on and basic science departments were moved from Lawrence to Kansas City. The hospital was moved to its present location, enlarged, and other services and educational features were added. Although the Medical Center was and is an agency of the state of Kansas, about half of the land and physical plant costs were met from other than state tax sources.

Physical Plant

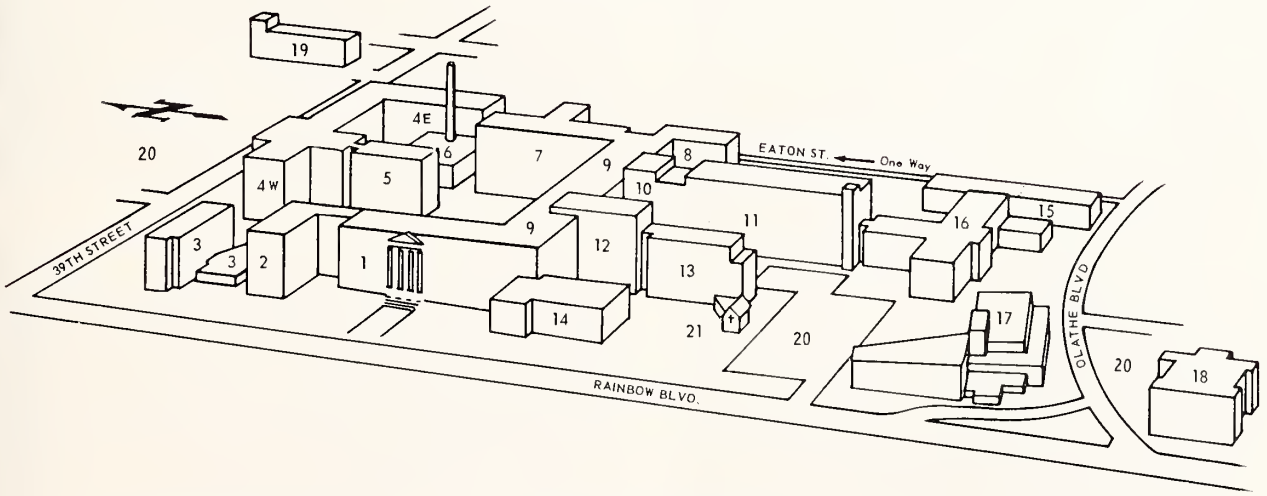
The existing plant, consisting of about one million gross square feet, was constructed over the years in increments for a total of about $18,000,000 in expenditure. Its replacement cost today would easily exceed twice that figure.

Figure 1 is an air view of the Medical Center and *Figure 2* outlines the individual buildings and their relationship to each other. The building complex in-



Figure 1

Guide to the
UNIVERSITY OF KANSAS MEDICAL CENTER



1. Administration Building "A"
2. Hinch Hall
3. Women's Residence
4. Wahl Hall
5. Hixon Laboratory
6. Physical Plant Building
7. Sudler Hall, Outpatient Clinics
8. "E" Building
9. Corridor Building
10. "D" Building
11. "F" Building
12. "B" Building
13. Children's "C" Building
14. Clendening Medical Library
15. Children's Rehabilitation Unit
16. "G" Building
17. Student Union – Continuation Center
18. Maccochaque Building
19. Field Station, Communicable Disease Center, USPHS
20. Parking Lots
21. Non-Sectarian Chapel

Published by Office of Informational Services
University of Kansas Medical Center
39th and Rainbow
Kansas City, Kansas 66103

FORM NO. 73-079 REVISED 3 1 '65

Figure 2

cludes the Clendening Library with one of the finest History of Medicine collections on this continent, the Spencer Chapel, the Hixon Laboratories, one of the early research buildings created before the development of the federal support of medical research, Wahl Halls East and West, the offices, teaching and research space for the basic science departments, the Student Center with the Battenfeld Auditorium, a 560-bed general hospital and supporting services with physicians' offices and research laboratories for the clinical departments, and the Children's Rehabilitation Unit where disabled children are taught and students are trained. Finally, there are facilities, dormitories, classrooms, administrative offices and a heating plant, and a branch of the U. S. Communicable Disease Center on the campus. Small houses not shown on the diagram have been converted for a variety of Medical Center uses including the activities of the Kansas State Educational Extension Service and Regional Medical Programs.

Educational Programs

The educational program is designed to produce technicians, technologists, and professionals in the sciences allied to health. In addition, an active program for the continuing education of members of the practicing professions has been conducted, and over 6,000 registrations were recorded last year.

Figure 3 shows in tabular form the number of students in certain categories enrolled in 1954 and currently. Students in continuing education are not included. It will be noted that the M.D. candidate enrollment has not increased significantly over the years.

UNIVERSITY OF KANSAS MEDICAL CENTER ENROLLMENT

	1954	1967
MEDICINE		
FIRST YEAR		126
SECOND YEAR	104	120
THIRD YEAR	120	112
FOURTH YEAR	123	103
NURSING EDUCATION		
BASIC (DEGREE)	91	179
PRACTICAL	14	70
MEDICAL TECHNOLOGY	48	8
PHYSICAL THERAPY		30
OCCUPATIONAL THERAPY		12
RADIOLOGIC TECHNOLOGY		24
NUCLEAR MEDICINE TECHNOLOGY		2
INTERNS	21	24
RESIDENTS	105	160
FELLOWS	99	38
TRAINEES		2
MORTUARY SCIENCE		3
NURSING FELLOWS		20
GRADUATE STUDENTS		
QUARTER TERM BASIS		62
SEMESTER BASIS		211
TOTALS	725	1306

Figure 3

In the early 1950's after the Korean War the institution attempted to accommodate returning veterans but this was abandoned because funds were not available to support adequate numbers of faculty. In the past two years federal grants for teaching and small amounts from the state have made it possible again to increase enrollment of M.D. candidates.

Other increases in enrollments were in the allied health professional groups, residents and graduate students (Ph.D. candidates). The complement of residents was increased as the size of the hospital increased and the out-patient department was enlarged. The development of federal graduate training grants and research grants made increase in graduate student enrollment possible and federal grants to nursing education aided in increasing nursing enrollment.

We are now in the position where the present M.D. candidate program cannot be expanded beyond 125 per class without more basic science and clinical facilities and faculty, unless the method of education is somehow changed. What happens to our M.D. graduates is displayed in another paper in this issue of the JOURNAL and is deserving of several comments. The trend is for more students to specialize and fewer to go into general practice as we now know it.

The majority of our graduates stay in Kansas or the bordering states. All healthy male graduates must go into the armed forces for two years. All have to take a year of internship. Most of our graduates take at least one more year of post-M.D. training. Over the past 15 years, a greater and greater percentage of Kansas physicians are University of Kansas graduates until now about two-thirds of the doctors in the state are such. At the moment we have very little information about where the products of our other educational programs settle down.

Comment

The trend toward specialization is a national phenomena and our experience is comparable to the national trend. This is an international problem discussed at the International Congress of Medical Education in India last fall in which our Chancellor, Dr. Wescoe, participated. The University of Kansas has attempted to encourage rural practice over the years by the use of rural preceptorships for all students, by employing a few general practitioners on the staff, and by developing a Home Care Program in recent years. Currently, consideration is being given to the recommendations of the AAGP, and we are embarked upon an extensive curricular study. On the national scene opinion is sharply divided among several points of view.

1. The development in medical schools of departments of family practice.

2. The establishment of Boards of Family Practice requiring three years of post-M.D. training with training programs run by:
   a. Departments of family practice in medical schools and hospitals.
   b. Joint efforts of departments of medicine and pediatrics without a department of family practice.
3. The training of family practitioners with certification by existing Boards of Medicine or Pediatrics.
4. The continued training of specialists with formation of regional group practices and improved transportation for rural patients.
5. The upgrading of the nurses to serve as first contact health workers stationed in smaller towns and related to a regional group of physicians.
6. The training of former armed forces medical corpsmen to serve as medical assistants and relate to group practices.
7. Shortening medical school and the training of less specialized physicians in increased numbers.

Reams have been written on the above points of view and each has strong supporters. Unfortunately, many of the points of view are in opposition. In some foreign countries the government requires young physicians to spend a year or two in rural areas. Even this has not reversed the trend to specialization in these countries. In our free enterprise system it seems inappropriate to consider forcing our students to enter certain types of practice and settle in predetermined locations.

As a profession we must learn more about the health care systems as they exist, combine with other health professionals and seek to solve the health care problems of the community as a whole. Whether any of the seven points of view mentioned above is a solution, whether a new solution will be proposed by someone, or whether a compromise of several points of view will be worked out remains to be seen.

The faculty of the University of Kansas has now tackled the problem on an organized basis and will seek the aid of the practicing profession and students in planning for the future solution. Hopefully Kansas can demonstrate imagination and ingenuity and lead in solving what indeed is an international problem. Meanwhile, our educational program of high quality will proceed until appropriate modifications in it are defined and implemented.

Finances

The financing of medical education is excessively complicated and difficult to understand for the public, the practicing profession, and even those working in the system. On the expenditure side of the ledger there are the costs of teaching of many different kinds of students, of research in many different areas varying in cost from the expenses of a theoretician who needs an office, a pencil and paper, to those of the man who works with an expensive electron microscope, and of patient care which varies greatly in the costs of caring for different kinds of illness. In these costs are salaries, operating expenditures, equipment, supplies, costs of physical plant, scholarships and loans, patient discounts for some of those not covered by reimbursement programs, and expansion and replacement of physical facilities. On the income side, earnings are obtained from patient charges, fees to students, private gifts, categorical private and federal grants for research projects, federal institutional grants, and state tax revenue supplied by the Legislature.

You will note in *Figures 4 and 5* that the trend has been towards a diminishing proportion of state tax support and diminishing hospital revenue with an increasing proportion of federal support and earnings of the staff. This has meant in effect that we have been forced to take on additional service to earn income and that basic teaching programs are being subsidized by these other sources of revenue and not by state tax money. These trends, coupled with the possibility of less federal support, increasing prices and wages, decreasing value of the dollar indicate we have approached the point where future expansion of teaching activities will be curtailed sharply until additional basic support or new sources of funds are found.

Other Aspects of the Program of KUMC

Hospital Activities—We care for about 16,000 patients per year on the in-patient service. Our average length of stay is comparable to most large private voluntary hospitals. Our out-patient department is large, having about 200,000 patient visits per year and is used extensively in teaching as are the hospital bed patients. Our per diem costs are higher than most comparable non-teaching hospitals and our charges are equal to those of the private voluntary hospitals of comparable size in the area.

Research Activities—On a dollar volume basis our research activity is about average for medical schools in the country. All faculty who do research also teach. Many faculty do no federally supported bench research but pursue academic activities of various kinds. Our clinical departments have a heavy load of patient care in addition to teaching and thus the faculty members on the average do less research than do those in the basic science departments. Research is an important component of the academic environment and enhances teaching in this institution.

Children's Rehabilitation Unit—This is a model rehabilitation center for handicapped children which conducts full-time demonstration classes for the education of those children with various types of handicaps and also works with special problems such as speech and hearing defects. There is a great shortage of

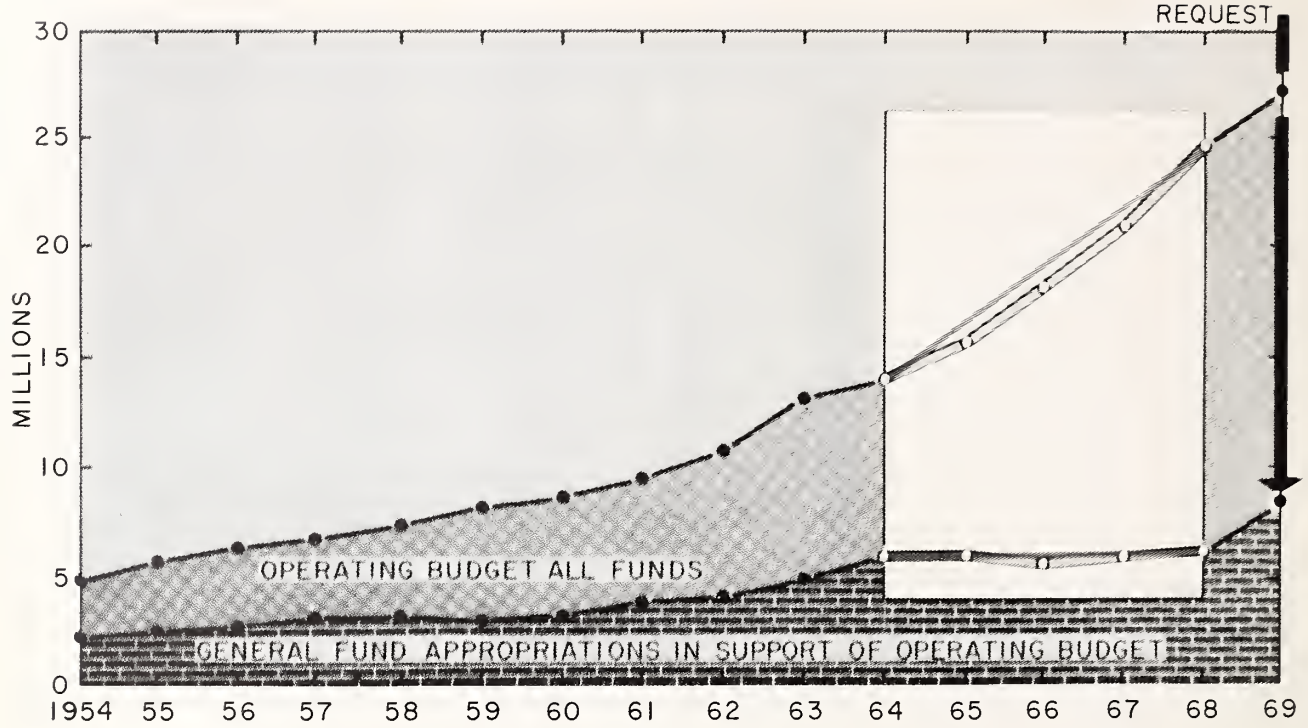


Figure 4

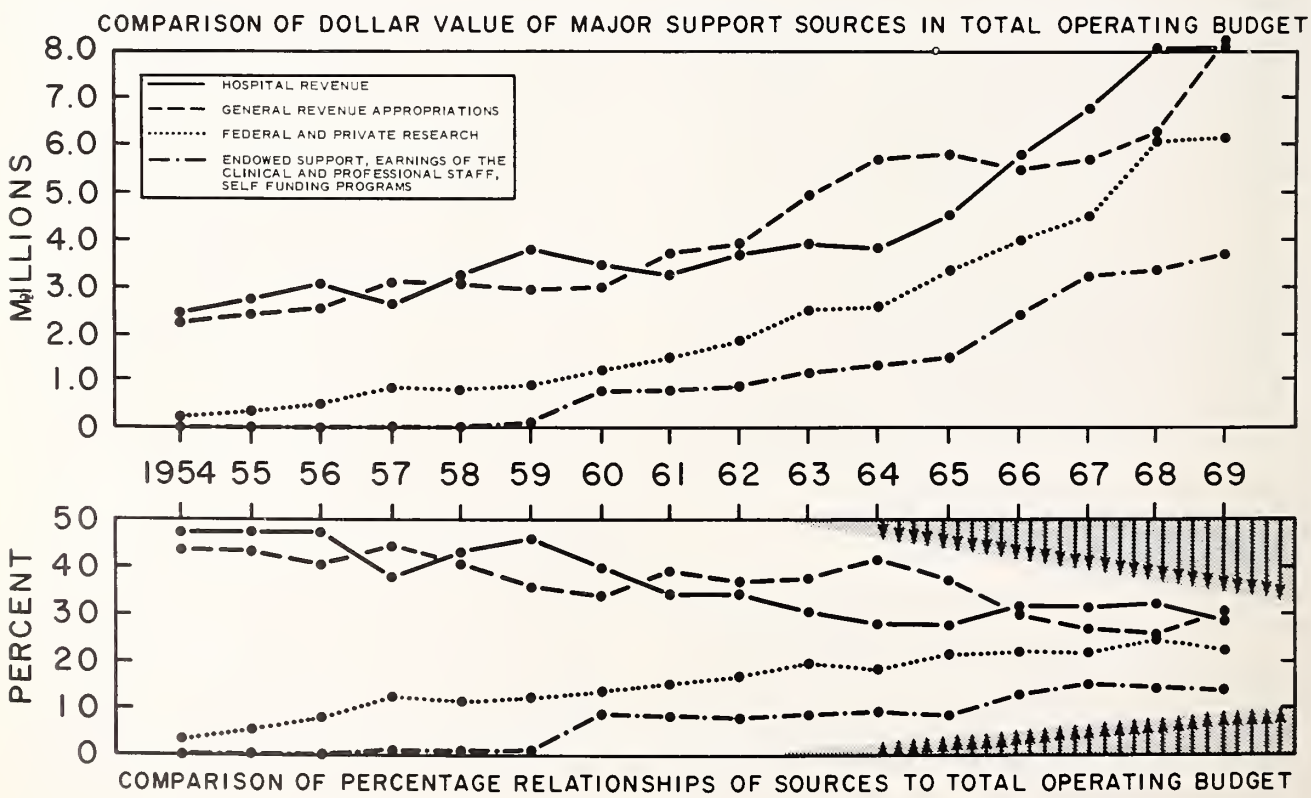


Figure 5

special education teachers and others to work with and understand the problems of the handicapped child. This unit trains such people.

Nursing—Training of licensed practical nurses and baccalaureate nurses goes on in this Medical Center. Recently a graduate program at the Master's level has been added for the training of graduate nurse specialists.

Other Allied Health Professional Groups—As has been indicated above, we train a variety of technicians and technologists in the allied health professional area in cooperation with the Lawrence campus of the University of Kansas.

The Future

The future is hard to define. Basically, two serious organized major looks at the future are being taken. One was referred to above indicating that the faculty have now organized to attack the problems of revision of the educational program at the Medical Center more effectively to meet the public needs. The second attack is on the future physical development of the Medical Center. The firm of Gorsline Associates of California, a planning organization, has been invited to develop with us a site plan for future development of the Medical Center over the next 20 years. It has been demonstrated that advanced planning over a period of time and continued planning is very appropriate to the sound development of institutions and thus we are embarked upon this course.

Conclusion

I consider myself fortunate to be associated with the excellent institution known as the University of Kansas Medical Center. I have learned much about it in the past year and one-half and have taken this opportunity to describe some of its achievements and problems. I have tried to be as factual and objective as possible. However, if a note of pride has stolen in here and there, I offer no apology.

A.M.A. SERVICE BRIEFS

Having been deluged in recent months with irate complaints from physicians charging that those physicians who lend the use of their names for testimonial advertisements, many of which contain prominent photographs of the physician, are "prostituting the profession," the AMA's Judicial Council has reiterated its opinion providing a guideline for physicians in their relations to commercial enterprises.

In rendering its opinion the Judicial Council considered only the advertisements in question. It did not assess the conduct of the physicians involved because (1) no charges had been brought against any physician as an individual and (2) the Council refused to impute improper motives to any of the physicians who, it felt, acted without any intent to violate ethical standards.

The Council concluded, however, that it was imperative to warn physicians of the consequences of providing testimonials without fully considering their potential impact upon the profession.

The complaints have stemmed from a rash of recent newspaper, Sunday supplement and magazine advertisements and also sensationalized "book jacket" copy prepared by publishers of books written by physicians.

Here is the opinion rendered by the Judicial Council:

"It is demeaning to the medical profession for a physician to permit the use of his name and professional status in the promotion of commercial enterprises. A physician may freely engage in business ventures outside the practice of medicine. However, out of respect for his profession, he should not allow his name or the prestige of his professional status as a physician to be used in the promotion of commercial enterprises."

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Where Graduates Go

The University of Kansas School of Medicine: A Study of the Profile of 959 Graduates and Factors Which Influenced the Geographic Distribution

EDWARD D. MARTIN,* ROBERT E. MOFFAT,*
RICHARD T. FALTER* *and*
JACK D. WALKER, M.D., *Kansas City, Kansas***

Nine hundred and fifty-nine graduates of the University of Kansas School of Medicine from the classes of 1951 to 1960 were surveyed and the correlations for geographic distribution of the graduates were investigated by means of a questionnaire.

The four primary areas of correlation: decreasing number of general practitioners, prior residence, attitudinal differences, and the effect of internship and residency within the state are discussed.

Introduction

THE CURRENT NATIONAL INTEREST in regional health planning and health manpower studies has raised a number of questions about the ultimate practice location of medical school graduates and the factors which influence their decision. Within the state of Kansas, a number of inquiries are made each year concerning what happens to graduates from the University of Kansas School of Medicine, and why. In an attempt to answer more accurately such inquiries and to gain some insight into future physician resources for the state of Kansas the following study was carried out by the Kansas Chapter of the Student American Medical Association in cooperation with the Dean's office at the Medical School in the summer of 1967.

A ten-year span of physician graduates at the University of Kansas School of Medicine was analyzed to develop a statistical profile and to determine some of the factors which influenced the profile. The sample group represented the graduating classes from 1951 through 1960. The classes after 1960 were not used since many of the graduates of those years were known to be engaged in residency training or serving in the armed forces. Nine hundred fifty-nine University of Kansas School of Medicine graduates were profiled. Factors which influenced their final geographical location were studied in an attempt to determine some of the significant factors which influenced the decision as to where and in what size community they would practice.

The source of much of the information came from the records of the American Medical Association, the records of the University of Kansas School of Medicine, and the membership roster of the Kansas Medical Society. In addition, a 36-item questionnaire was sent to the sample group. The information elicited from an analysis of the records included location, size of community, type of practice, professional activity and sex. The information elicited from the questionnaire included home town size, prior residence, residence of parents at present, amount and type of postdoctoral training, internship and residency locations. In addition, it explored motivating factors such as economic opportunity, availability of hospital facilities, climate and personal motivating factors such as the influence of the graduate's wife.

A similar study was reported in 1960 for all medical school graduates in the United States for a 35-year period.[1] This study covers many of the same motivating factors but involves graduates from a single medical school for a ten-year period of time.

Table 1 represents a summary of the ten graduating classes from 1951 through 1960. There were 1,031 physicians graduated. Thirty-two were women, or 3.1 per cent. Seventeen are known to be deceased, representing 1.5 per cent. Verifiable information was

* Medical Student—University of Kansas School of Medicine.

** Associate Dean and Assistant Professor of Preventive Medicine and Community Health, University of Kansas School of Medicine.

TABLE 1

Class	Total Graduated	Male	Female	Deceased	No Information	Total Surveyed
1951	84	80	4	4	4	76
1952	82	78	4	1	6	75
1953	103	100	3	4	4	95
1954	105	103	2	1	5	99
1955	121	118	3	1	2	118
1956	120	119	1	1	6	113
1957	107	102	5	1	5	101
1958	107	106	1	2	7	98
1959	101	97	4	1	6	94
1960	101	96	5	1	10	90
Total ..	1,031	999	32	17	55	959

not available on fifty-five. The profile sample consisted of 959 physicians (or 95 per cent) of the living graduates during that period. Completed questionnaires were returned by 689 of the 959, or approximately 69 per cent of the total sample. The minimum return from any graduating class was above 60 per cent. The questionnaire was developed to minimize the element of bias and the high percentage of questionnaire returns strongly increase the chance for reliability.

Geographic Distribution

Table 2 represents the breakdown in the sample between physicians carrying on their professional activities in Kansas and those outside of Kansas. Forty-one per cent (392) of the physicians are located in Kansas. Fifty-nine per cent (567) are located outside of the state. A comparison of the 1951-55 graduates and 1956-60 graduates shows a slight, but significant, downward trend of graduates who chose to enter practice in Kansas.

TABLE 2

Class	Total Surveyed	Total in Kansas	Per Cent	Total Out of Kansas	Per Cent
1951	76	39	51.3	37	48.7
1952	75	33	44.0	42	56.0
1953	95	48	50.5	47	49.5
1954	99	42	42.4	57	57.6
1955	118	48	40.7	70	59.3
1956	113	43	38.1	70	61.9
1957	101	40	39.6	61	60.4
1958	98	42	42.9	56	57.1
1959	94	26	27.7	68	72.3
1960	90	31	34.4	59	65.6
Total	959	392	40.9	567	59.1

Table 3 represents the distribution of the sample group by states and by specialty versus generalist practice. Missouri leads all other states with 133 physicians, or 23.5 per cent of the out-of-state group, and 13.9 per cent of the total sample. Of those in Missouri, 96 are located in the metropolitan Kansas City, Missouri, area. When Kansas City, Missouri, physicians are added to those located within the state of Kansas, it is evident that 50.9 per cent of the total sample are found to be located in the Kansas-Kansas City, Missouri, area. The distribution in other states, in order, are California (110 or 11.5 per cent of the total sample) ; Colorado (31 or 3.2 per cent) ; Texas (20 or 2.1 per cent) ; Washington State (19 or 2.0 per cent) and New York (17 or 1.8 per cent). Two-thirds of all the graduates are located in Kansas, Missouri, and California. This trend is fairly uniform when each class is analyzed and there are individually no statistically significant trends indicating a change in regional preference during the years of this study.

Career Choice

Within the state of Kansas, 49 per cent of the graduates are engaged in general practice; internal medicine is next with 15 per cent; then general surgery with eight per cent and psychiatry with five per cent *(Table 4)*. For those practicing outside of the state of Kansas, 27 per cent of the graduates were in general practice; 15 per cent in internal medicine; seven per cent in general surgery; and nine per cent in psychiatry.

The percentage of graduates from each class entering general practice has decreased from a mean for the first five years of 44.2 per cent to a mean of 34.1 per cent in the last five years, with the largest decreases being in the last three years of the sample. This decrease is comparable to the national trends.

Analysis of specialty choices for each year showed no trends over the ten-year period, but over-all figures reflected the increasing tendency for graduates to enter specialty practice.

There was no significant drop in the number of graduates beginning specialty practice in Kansas through the sample years but there was a significant decrease in the number *starting* general practice in the state. This decrease parallels the decrease in the graduates entering general practice in other states and the national trend mentioned above.

Within the state of Kansas, 79 per cent of the 392 graduates are engaged in the private practice of medicine; 15 per cent are engaged in non-private

TABLE 3

GEOGRAPHICAL DISTRIBUTION OF GRADUATES
BY MAJOR STATES AND SPECIALIST vs. GENERALIST PRACTICE

	General Practice	*Specialty Practice*	*In Training*	*Total*	*Per Cent of Total*
Kansas	191	184	17	392	40.9
Missouri	45	82	6	133	13.9
(Kansas City)	(23)	(69)	(4)	(96)	(10.0)
California	24	82	4	110	11.5
Colorado	10	20	1	31	3.2
Texas	3	15	2	20	2.1
Washington	6	12	1	19	2.0
New York	2	11	4	17	1.8
Minnesota	3	10	3	16	1.7
Oklahoma	5	8	2	15	1.6
New Mexico	5	7	2	14	1.5
Oregon	5	7	1	13	1.4
North Dakota	6	5	1	12	1.3
Arizona	5	6	0	11	1.1
All Others	46	106	4	156	16.0
Total	356	555	48	959	100.0

practice but direct patient care (including V.A. hospitals, armed forces, residency training, public health or other full time salaried positions) ; six per cent are in activities not directly related to patient care. Less than three per cent are engaged in pure research activities.

When the survey group is considered as a composite, 70.7 per cent are engaged in the private practice of medicine; 21.7 per cent are engaged in full time salaried patient care; and 7.6 per cent are engaged in medically related areas.

TABLE 4

TYPE OF PRACTICE

	Practice in Kansas PER CENT	*Practice Not in Kansas* PER CENT	*All Graduates* PER CENT
General	48.7	28.7	36.2
Internal Med.	15.2	14.8	14.9
General Surg.	8.1	7.2	7.5
Psychiatry	5.2	8.5	7.2
OB-GYN	4.5	5.3	4.9
Anesthesiology	4.2	3.3	3.6
Pediatrics	2.6	6.2	4.8
Ortho. Surgery	1.8	3.0	2.5
Pathology	1.5	3.7	2.8
Radiology	1.3	3.5	2.6
Other Spec.	6.9	15.8	13.0

Size of Community

There is a small but definite shift through the ten years from practice in small communities into large communities. The shift is more noticeable when the 1956-60 group is compared with the 1951-55 group. This correlates with the urbanization of the population both during 1951 through 1960 in Kansas and nationally.

It is interesting to compare the distribution of graduates in regard to original home town size and the choice of final practice location *(Table 5)*. Fifty-seven per cent (374) of those graduates answering the questionnaire had spent the majority of their pre-medical school years in towns with populations of less than 30,000. Only 34 per cent (283) of those answering the questionnaire were practicing in communities with populations of less than 30,000. There would appear to be a significant trend for graduates who come from large urban communities to practice in large cities. There is a correlation for graduates who come from communities of 30,000 and under to practice in communities of under 30,000 population, but the correlation is much less significant. Of the physicians answering the questionnaire who are now practicing in very small communities (under 5,000), 53 per

TABLE 5
DISTRIBUTION BY COMMUNITY SIZE

Location	*Practice*	*Greater than 1,000,000* PER CENT	*100,000-1,000,000* PER CENT	*30,000-100,000* PER CENT	*5,000-30,000* PER CENT	*Less than 5,000* PER CENT
Kansas	General	0	19	10	27	44
	Specialty	0	66	17	13	5
Other States	General	9	19	18	28	27
	Specialty	20	38	30	10	1
All Graduates	Generalists & Specialists	10	36	21	18	16
Breakdown of population of the state of Kansas*		0	23	5	22	50

* 1960 Census—1967 *World Almanac*

cent came from original small home towns (under 5,000). This data is comparable with a study done in Western New York State.[2]

There is a remarkable degree of mobility among physicians. Of those responding to the questionnaire, 126 (18.3 per cent) had begun practice and then moved their practice to another community. Of these, 66 per cent moved to a larger community; 24 per cent to a community of comparable size, and 10 per cent to a smaller community.

Postgraduate Training

Internship training in Kansas was significantly correlated with eventual practice in the state ($\phi^2 = <.0005$). Of those 657 responding to the questionnaire, only 30 per cent (197) took their internship training in Kansas. Of that 30 per cent, 130 or 66.3 per cent remained in the state to practice. Only 31.8 per cent of those graduates who received internship training in other states returned to practice in Kansas. Of the 30 per cent who took their internship in the state of Kansas, 57.3 per cent of those who eventually specialized remained in Kansas and 76.1 per cent of those who went into general practice remained in the state. Of all responding graduates, 45.2 per cent are now practicing within 200 miles of their internship location. The per cent for Kansas practitioners (53 per cent) is higher than that for out-of-state practitioners (30 per cent).

Residency training in Kansas was also significantly correlated with eventual practice in Kansas. Of all the respondents who completed a residency in Kansas, 50 per cent remained in Kansas to practice. Only 34.8 per cent of the respondents who left the state for residency training returned to the state to practice.

Prior State Residence

There was a significant correlation between state residence prior to admission to medical school and eventual practice in the state of Kansas. Forty-nine per cent of the graduates who were Kansas residents originally, eventually began practice in the state. These figures are comparable to ones calculated from published values for all Kansas physicians (51.1 per cent).[3] A factor suggesting limited mobility is also demonstrated by these data which reveal that 68.8 per cent of all Kansas physicians were either from Kansas or the four adjacent states—Missouri, Oklahoma, Nebraska and Colorado. Only 22 per cent of those who were non-residents before medical school established practice in Kansas. Sixty-three per cent of the Kansas residents who became general practitioners remained in the state while only 37 per cent of those who became specialists remained. No significant trend was apparent.

Fifty per cent of the graduates whose parents are still residing in Kansas established practices here, while only 25 per cent of the graduates whose parents are not living in the state at this time established practices in Kansas. Seventy-eight per cent of Kansas practitioners studied have parents who are now residing in the state.

Personal Motivating Factors

Of those responding to the questionnaire, 84.9 per cent rated economic opportunity as being of either strong or moderate influence in their choice of practice location. Proximity to a large teaching medical center and the wives' influence on the decision to locate in a particular area were rated 65.9 per cent and 67.9 per cent respectively.

Significant differences ($\phi^2 = <.0005$) were found between those who chose to practice in Kansas and those who left the state in the ranking of climate and recreational facilities as factors affecting practice location. Kansas practitioners found climate and recreational facilities of little concern in practice location choice. Non-Kansas practitioners rated these two factors significantly in their motivation toward location. Both Kansans and non-Kansans were about equal in their ranking of the importance of economic opportunity, proximity to a large medical center and influence of the wife. A significant difference ($\phi^2 = <.0005$) was found in the factors of availability of specialist consultants, proximity to a large medical center, and availability of group practice opportunities between general practitioners and specialists. The specialists ranked these factors as highly important in their location choice. The generalists ranked them as significantly less important.

Discussion

There appear to be four factors which have the strongest influence on the final geographic location of this sample of University of Kansas School of Medicine graduates between 1951 and 1960. These are: (1) Prior state residence; (2) Increased specialization and urbanization; (3) Subjective attitudes—economics, climate, recreational facilities, wife's desires; and (4) Location of residency and internship training.

The first, prior state residence, is clearly demonstrated to be of significance by the high percentage of this group who chose to locate in Kansas to practice. Through the years, the University of Kansas School of Medicine has selected 85 to 90 per cent of its beginning medical school class from residents of the state of Kansas. This is characteristic of state supported schools.

The second is a reflection of the population distribution of the state and the trend toward increasing specialization. With only 28.4 per cent of the state population in towns with more than 30,000 residents, there is a great tendency for the graduate who decides on specialty practice to seek a location in a state with more large population areas. It has been established that while general practitioners are distributed independently of population, specialists are much less likely to be found practicing in sparsely populated areas.[4] The decrease in number of physicians entering general practice has been clearly demonstrated. Therefore, the type of physician who is most likely to enter practice in the majority of Kansas towns, the general practitioner, is in great demand across the nation and his relative numbers are gradually decreasing. The correlation between the over-all decrease in numbers of physicians staying in the state has been shown to be directly correlated with the decreasing numbers of general practitioners beginning practice in the state. This correlation is emphasized by consideration of the results of the subjective influencing factors and the differences between the general practitioner and the specialist. The influential nature of the proximity to a large medical center and specialty affiliation will serve as a deterrent to practice in a small town where these facilities or opportunities are not readily available. These influences were clearly demonstrated in the study by Parker. Kansas, like most other states with large rural and semi-rural populations, suffers from the trend of physicians to undertake specialty training and subsequently to seek out large metropolitan areas for practice locations. This combination of factors will probably not change in future years.

The new "family physician" now being widely suggested will be a specialist in his type of practice and will certainly demand readily available consultants, group practice arrangements and availability of a large medical center as a resource. Attempts to alter these circumstances in the best interests of retaining physicians in Kansas—both specialists and generalists—might include the establishment of group practice opportunities throughout the state, regionalization of medical hospital services, and new efforts at making the resources of the University of Kansas Medical Center available to all areas of the state. A continuation of expansion of the Postgraduate Department of the University of Kansas Medical Center would have a favorable influence as would the implementation of Regional Medical Programs for the state of Kansas.

The next important correlation deals with the subjective attitudes which strongly influence the medical graduate. The fact that there was such a significantly greater consideration of recreational facilities and climate with those physicians leaving the state emphasizes the complex individual nature of the decision to locate in a certain area. Much effort could be exerted by the people of the state of Kansas to correct the image of the state concerning the weather. A close look at weather statistics would indicate a favorable position as it relates to many other parts of the United States. Kansas has a bad image weather-wise which could be corrected. Recreational facilities have been vastly improved in Kansas in recent years. More can be done in the area of recreational facilities and the story about what has already been done needs to be told. The hard-sell, Chamber of Commerce approach needs to be undertaken about the state of Kansas.

The final important area of correlation deals with the location of the graduate's place of internship and residency training. The importance of internship and residency at the time when final geographical loca-

tion choice is made has been demonstrated by other studies. Our study and the study by Weiskotten has shown that the location of the internship and residency are two of the most significant factors relating to final practice location. A review of internship and residency opportunities would certainly seem indicated. The factors involving choice of internship and residency for Kansas graduates are being studied at the present time and the initial data seems to indicate that the elements which influence these choices are certainly factors where modifications could be considered with a good chance of success.

The gradual but steady decline in the numbers of all physicians who are entering the state to practice points out the need to remedy this trend before it profoundly affects statewide medical care. The realities of increasing specialization and urbanization in the nation and their consequent implications for physician distribution cannot be ignored. It is widely thought that these trends are irreversible and probably a logical course for the evolution of medical practice. Measures which may prove to be effective in providing family practitioners for smaller communities are now being widely studied but they are complicated and necessarily long-range in scope. It would seem, then, that the most important correlations for practice in Kansas which could be most rapidly delineated and most effectively implemented are those of the availability and attractiveness of internship and residency training in the state. A determined approach on the part of the Kansas Medical Society, Kansas Hospital Association and the people of the state of Kansas in the direction of the expansion of available internship and residency programs in the state might seem to be the most logical course of action.

Summary

Nine hundred and fifty-nine graduates of the University of Kansas School of Medicine from the classes of 1951 to 1960 were surveyed and the correlations for geographic distribution of the graduates were investigated by means of a questionnaire.

The survey showed that 41 per cent of the graduates in this ten-year period established practices in Kansas and that more than one-half were practicing in either the state of Kansas or Kansas City, Missouri. The states which had the most graduates were Kansas, Missouri, and California.

A correlation between prior state residence and eventual practice in Kansas was demonstrated. A strong correlation between internship and residency in the state with eventual practice in the state was observed. The factors found to most significantly influence all graduates were economic opportunity, proximity to a medical center or large hospital complex, group practice opportunities, and the influence of the wife on the decision. The influencing factors which were found to be different from Kansas and non-Kansas graduates were climate and recreational facilities. Influencing factors such as proximity to a medical center, specialty affiliation, and offers to join a group practice were much stronger influences among specialists than among general practitioners.

The increase of graduates entering specialty practice was found to parallel the national trend and the decreasing number of graduates entering the state was found to be related to the decreasing interest in general practice.

The four primary areas of correlation: decreasing number of general practitioners, prior residence, attitudinal differences, and the effect of internship and residency within the state were discussed.

The conclusion was reached that increasing the number and desirability of in-state internship and residency opportunities might prove to be the most effective means to prevent a future depletion of physician manpower in the state.

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Community Health Care

Home Care—A Misnomer

GLEN E. HASTINGS, M.D.,* *Kansas City, Kansas*

THE HOME CARE TEACHING PROGRAM at the University of Kansas provides freshman medical students their first contact with the realities of medical practice. For the past three years, over 90 per cent of each freshman class has elected to participate in the program. We wish we could take credit for this excellent acceptance of this teaching program in community health medicine, but the program's popularity clearly arises from its offer to give students an experience they came to medical school to learn: a chance to help real patients with real problems in the setting in which patients really live.

Staffing and Patient Care

The staff of the Home Care Program includes five physicians, four full-time public health nurses, a social worker, a nutritionist, and occupational and physical therapy consultants. In addition to teaching duties, the staff provides comprehensive family-centered care for patients referred by community agencies or by one of the hospital's clinical services.

The problem of efficiently supplying comprehensive health care to indigent urban families has not been solved. Our results, therefore, often fall short of our desires. When we fail, our job is to identify the causes of failure both for our own interest and for the education of our students.

Patient selection criteria recently reviewed by the unit include the following:

1. Home Care must provide some unique service or combination of services required by the patient or his family.
2. The services of two or more health disciplines must be required.
3. Patients or their families must possess some type of rehabilitation potential (i.e. there must be something to accomplish; the unit is not a substitute for a custodial care nursing home).
4. There must be at least one responsible family member in the home.
5. The family must live within 15 minutes driving time of the Medical Center.

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The Teaching Program

The operational format of the educational program has not substantially changed since its inception. Groups of 20 to 25 medical students enter the program simultaneously with groups of 20 to 25 student nurses. A team composed of one medical student and one nursing student is assigned to a family in which at least one member is under medical care. Every week, each team visits its family and a family assigned to another student team in the company of a member of the teaching staff. The primary function of the medical student is to serve as a "family advocate"—similar to the "family advisor" role Logan Clendening recommended for the family practitioner 40 years ago.[1]

The Home Care teaching program is a multidisciplinary community-based laboratory for teaching comprehensive health care of families. Its teaching content has centered increasingly upon the art of medical care (physician-patient interaction, principles of family organization, etc.) and upon the social and community aspects of health. Research being conducted within the unit is designed to test the effects of such a program on the performance of its graduates.

Expected future developments include increasing involvement with other community-based programs, increased utilization of behavioral scientists, and development of a means whereby junior or senior medical students may care for patients in the community. Only in the community may one learn to deal with the actual problems of patient-care facing the family practitioner.

Groups of five student teams supervised by a single staff physician and public health nurse meet weekly for a one-hour seminar discussion to share clinical experiences. Of all aspects of the program,

the seminar hour has undergone the greatest change. During the first two years, each seminar dealt with a disease entity afflicting one of the groups' patients. The staff physician provided a survey of the salient points of the patient's disease and correlated basic science information with the clinical material. By the autumn of 1966, however, much of this work was being done very effectively by a Saturday morning clinical correlation conference elective and by an excellent x-ray correlation conference offered by Dr. Nels Strandjord, the former chairman of radiology. A turning point in the Home Care Program occurred when students began asking to learn about their individual patient's disease in order that more class time might be spent with the behavioral aspects of patient care. The cancer seminar became a discussion of the dying patient, his changing communication patterns, his changing role in the family structure, and the possibility of his being abandoned near the end of his illness because "nothing can be done." The seminar about genetic defects became a free-wheeling discussion of the moral and ethical issues of genetic counseling, contraception, and birth control.

A seminar was instituted dealing with patient compliance, and the physician-patient relationship in the care of the chronically ill. Another dealt with the phenomenon of the "social dropout," the attendant problem of drug abuse and society's limited method of response. A discussion of differences in strategy between rehabilitative and curative medicine and the role of occupational and physical therapy with homebound patients is a fifth important seminar topic. The discussion of the impact of state and federal legislation on the delivery of health care usually stimulates vigorous debate.

Education Objectives

During 1966-67, at the request of the United States Public Health Service, the Home Care Unit presented five, two and a half-day seminars for medical educators on the teaching of comprehensive care. This served as an impetus for re-examination of the unit's teaching objectives and an attempt to identify its specific contributions to the education of students of all disciplines. The following is a product of those deliberations:

The unit is a model for demonstrating comprehensive health care of families in the community. It provides a setting where students of all disciplines should learn and be able to utilize:

1. The unique contributions of each member of the interprofessional health care team in an ambulatory care setting.
2. The social and cultural factors influencing health status and the health care utilization.
3. The structure and resources of the community as they relate to health and social welfare.
4. The dynamics of interpersonal and small group communication.

The contributions of each of the health professions is discussed briefly during the initial orientation session. Patient care planning is a team endeavor in which students and staff participate and in which the role of each health professional is fluid. The focus is upon problem solving and not upon the preservation of traditional professional roles. It is not, therefore, uncommon for the nurse to palpate an abdomen or for the medical student to contact the Department of Social Welfare. Thus, the real learning of "team" medicine takes place as the student works with other health professionals to solve actual problems of patient care.

Social and cultural influences vitally affect both medical care and the occurrence of disease. When the student personally observes social phenomena directly influencing medical care, he learns to use social data in the same way he will later use biological information. For this reason, we do not reject families whose major problems are social as others have suggested.[2] These problems also must be dealt with in the real world.

Seminars about state and federal legislation and the problems of drug abuse deal in depth with the structure of several community programs. Students frequently visit community agencies: Rehabilitation Institute, Kansas Neurological Institute, Wyandotte County Guidance Center, and many others. Our experience is that students learn best about the function of each of these agencies by working with them to solve a patient problem. Last year, a student team learned more about the city's political structure by trying to get the water department to supply water to an indigent household than they could have been taught in a semester of political science.

Teaching communication skills begins with the first meeting of each group. A video-taped test of interviewing skill is given to all entering students; another examination administered at the end of the eight weeks measures the effect of the program. Testing interviewing skills emphasizes the concept that these skills are important to the practice of medicine, and that they can be learned. This is perhaps the test's most important function.

Assigned readings provide theoretical information about interpersonal communications and specific points of interviewing technique. Staff physicians encourage students to examine both the patient's medical history and the process of obtaining that history.

A seminar discussion about interviewing is conducted after one of the students' first home visits. Its specific purpose is to deal with student anxieties

and difficulties with patient interviewing. The Home Care teaching program heavily emphasizes the learning of interviewing skills. We believe that much of today's "widening gap between physicians and patients" results from the fact that medical students come predominately from upper-middle class homes, and because of this restricted background they have difficulty understanding the social pressures confronting most of their patients. Skill in interviewing depends upon developing empathy with the person interviewed. If tomorrow's physician is to communicate with patients of all social classes, the problem of developing interviewing skills is inseparable from learning about the patterns of speech, variations in health behavior, and differences in family organization seen among patients of other social and ethnic backgrounds.[3] Francis Peabody's eloquent discussion in this regard is as valid today as it was 40 years ago:

> . . . Everybody, sick or well, is affected in one way or another, consciously or subconsciously, by the material and spiritual forces that bear on his life, and especially to the sick such forces may act as powerful stimulants or depressants. When the general practitioner goes into the home of a patient, he may know the whole background of the family life from past experiences; but even when he comes as a stranger he has every opportunity to find out what manner of man his patient is, and what kind of circumstances make his life. He gets a hint of financial anxiety or a domestic incompatibility; he may find himself confronted by a querulous, exacting, self-centered patient, or by a gentle invalid overawed by a dominating family; and as he appreciates how these circumstances are reacting on the patient he dispenses sympathy, encouragement, or discipline. What is spoken of as a "clinical picture" is not just a photograph of a man sick in bed; it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his friends, his joys, sorrows, hopes and fears. Now, all of this background of sickness which bears so strongly on the symptomatology is liable to be lost sight of in the hospital . . .[6]

Future Development

Today's practicing physician has unparalleled knowledge of the science of individual patient care. However, his traditional focus has been *only* upon those patients who seek his care. An affluent, health-oriented society now asks that we measure our efforts against the health needs of the entire population.[7] To accomplish this we must extend beyond the public clinic to tap the experience of such people as the community organizer, the county welfare association, and the OEO neighborhood health center. Increasing involvement with existing community agencies is, therefore, a predictable change in the Home Care teaching program.

From this description of the Home Care teaching program it is apparent that many of its objectives involve learning behavioral skills. Dr. Charles E. Lewis, the unit's originator, has referred to it as a "laboratory for the learning of behavioral science." Two consultant clinical psychologists are being utilized this year for staff training in group dynamics and for consultation with the teaching program. Increased use of behavioral scientists in the teaching program is a second predictable development.

An early study of Home Care students demonstrated that they became more "patient-centered" than those not participating in the program,[4] but a follow-up study showed that this effect diminished with the passage of time.[5] It is to be hoped that the future will see the development of a program offering junior or senior medical students the opportunity to re-experience the problems of caring for patients in the community in which they actually live.

The fourth and least important change may well be in the name of the program. Its scope encompasses much more than the home care of individual patients. It has become a teaching program in family-centered Community Health Medicine. Its name should reflect this fact.

We are indebted to Mrs. Betty King for manuscript preparation.

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NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

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Medical Care Utilization

Consumer Survey of Medical Care Utilization

HAROLD W. KEAIRNES, M.D.,* *Kansas City, Kansas*

A three county survey of medical care utilization was conducted by the Research and Evaluation Section of Kansas Regional Medical Programs during the summer of 1967. The preliminary results on medical care utilization are reported.

PATIENT CARE can always be improved. New approaches to diagnosis and treatment flow from the laboratories daily. How these can be used to improve patient care poses a continuing dilemma for practicing physicians. How can they learn about the new procedures? Which doctors should develop the skills necessary to utilize the procedures safely and effectively? Can the patient afford to pay for this new service? Where must the patients go to obtain this new benefit? These issues concern not just the doctors, but the entire community. In response to this increased concern for improvement in patient care, the "Regional Medical Program to Combat Heart Disease, Cancer, Stroke and Related Diseases" was developed.

In Kansas, the governor's Advisory Group on Regional Medical Programs established a working organization called the Kansas Regional Medical Program (KRMP). This organization quickly established the principles upon which all subsequent developments in the program would be based: (1) continuing education, (2) multidisciplinary cooperation, (3) regionalization of effort and resources, and (4) local initiative. KRMP drew on the strength of the continuing education programs of the Department of Postgraduate Medical Education of the University of Kansas Medical Center. With the stimulus and financial support of this new organization, new and more extensive courses were developed for doctors, nurses, occupational therapists, physical therapists and other health personnel. These courses were designed to meet the expressed needs of communities and of the various professional organizations. Simultaneously the staff of KRMP encouraged local communities to form local action groups to define needs and to propose solutions to these problems which utilized the principles of cooperation between communities within a region, between institutions within a community, and between doctors, nurses, hospital administrators and all the members of the health professions. These local action groups (LAG's) were then asked to develop formal proposals for projects in medical education or in medical care demonstrations which could be carried out by the local community with the support of the KRMP staff and KRMP funds. Some of the projects, which will be described in greater detail elsewhere, include the Circuit Course for Nurses, the Cardiovascular Nurse Training Project, the Central Kansas Medical Center Educational Project, Continuing Education Short Courses for Occupational and Physical Therapists, Cardiovascular Work Evaluation Project and feasibility studies in hospital computers and in communication networks.

The Research and Evaluation Section of KRMP was established to determine how well each of the projects meets the specific objectives of the individual project and the over-all goals of the entire program. Of primary concern are the benefits of these projects that reach the patients. Evaluation studies, therefore, concentrate on studies of patients, the medical care that they receive, and patients' response to improvements in training, procedures, equipment, and services that result from activities of KRMP. They depend on measures of medical care utilization, on descriptions of patterns of medical care and on indexes of death, disease, disability, discomfort, and dissatisfaction of the patient population which, in this case, represents the population of the entire state of Kansas.

A detailed understanding of the relationship between patients and the medical care system was desired as a background for understanding changes that were going to occur. There had been no previous studies in Kansas or in the Midwest that shed light in this area. It became apparent that a study was a logical approach to define the baseline against which all subsequent improvements in the availability, accessibility, or quality of medical care and in patient bene-

* From the Department of Preventive Medicine, University of Kansas Medical Center.

fits would be measured. This led to the Consumer Survey of Medical Care Utilization, which was carried out in June and July of 1967, the first two months of activity of the operationally-funded Kansas Regional Medical Program. This is a preliminary report of that study.

Method

A household survey was designed to study medical care utilization and the factors that affected it. Three counties were selected on the basis of their rate of population growth, their economic strength, and their relative degree of urbanization. Barton County, chosen primarily because it is the site of the Central Kansas Medical Center Educational Project, represents a community that has a relatively stable size population, that has great economic strength, that is quite stable and that has a good mixture of residents in various size towns. Douglas County, whose chief city is Lawrence, the home of the University of Kansas, was considered to be a growing community with a growing economic base in a potential metropolitan area. Labette County, a county in southeastern Kansas with an older age population, has a decreasing number of residents, an economic base which is relatively less strong, and a high proportion of rural and small town residents. These counties were considered to be representative of the entire range of population and socio-economic characteristics that would be found in Kansas outside of the major metropolitan areas.

From each of the counties, a sample of 750 households was selected. The sample was stratified so that the number from rural areas, small towns and major towns was proportionate to the population. The sample was also constructed so that two-thirds of the respondents were women and one-third were men.

The questionnaire obtained detailed information about all the persons living in the household including their age, sex, relationship and number of visits to physicians in the two weeks preceding the interview. The individual respondents were asked about their jobs, their shopping habits, and their attitudes towards their community and towards their personal health. The primary focus of the questionnaire was on disabilities, discomforts and dissatisfactions of the people and their utilization of doctors and other health personnel to obtain relief from their problems.

A group of 20 students from the University of Kansas and about 40 school teachers and housewives from the local communities were trained in door-to-door interview methods. Interviews were done between June 19 and July 10, 1967. All the information obtained was handled confidentially. Ten per cent of the interviews were partially redone to check on the validity of the original interview. The interviews were then coded and the results keypunched for data processing.

Results

Only preliminary results are available at this time on the 2,375 completed interviews. In this paper, the results from all three counties will be considered together. Detailed analysis will be presented elsewhere at a later date.

The typical person interviewed was 43 years old, was married and had lived in that community for 17 years. He felt that "being healthy," "having a good family life," and "having good friends" were more important than "enjoying life," "not having to worry about money," or "being able to do what you want to do." Seventy-five per cent felt that they had "good health," but more than 90 per cent felt that their health was the same or better than other persons of the same age. Approximately 20 per cent felt that their health limited or disabled them in some way when asked a general question, but 35 per cent reported some disability in carrying out one or more specific tasks from a list.

During the two weeks before the interview, the 2,375 heads of households who were interviewed reported knowledge of 869 physician visits and 431 physician telephone calls. Thirty-five per cent of the families made some contact with a physician during a fortnight in June and July. Visits to the physician were made by 110 out of 1,000 individuals in the population; 56 of each 100 individuals made a telephone call to the doctor. This represents an overall utilization of physician services during the summer months of 166 physician contacts per 1,000 persons per fortnight.

When the physician visits were analyzed, it was found that 82 per cent of the visits occurred in the doctor's office, eight per cent in the hospital as an outpatient, and four per cent in the hospital as a bed patient. The other four per cent occurred at home or somewhere else. At these visits, 34 per cent of the physicians gave a prescription of medicine, 23 per cent gave an injection, 23 per cent gave some other treatment, 14 per cent did a complete physical examination, 11 per cent took a blood test, eight per cent took an x-ray, six per cent arranged for admission to the hospital or suggested consultation with another doctor, but 17 per cent of physicians did none of these things. The patients reported that their most recent visit to the doctor was for treatment or follow-up of illness (59 per cent of visits), for routine checkup or physical examination (20 per cent of visits), for treatment of injuries (10 per cent of visits), and, less frequently, for post-surgical care, post-hospital care, or for pregnancy.

Over 90 per cent of families had made at least one

visit to a physician in the preceding twelve months. Approximately 87 per cent of the families reported that they had "one doctor that they usually call first when there is sickness in the family." Although this was a medical doctor over 95 per cent of the time, many families reported contacts with other members of the health professions. In the two weeks before the interview, 11 per cent had contacted dentists; seven per cent had seen nurses in doctors' offices without seeing the doctor; seven per cent had been to a laboratory technician; six per cent had been to the druggist; and three per cent had consulted a chiropractor.

Approximately 21 per cent of the families had had one or more members hospitalized during the preceding six months. They reported that 619 family members had been hospitalized a total of 687 times. This suggests an annual rate of hospitalizations of about 580/1000 families or 175/1000 individauls. Only 70 per cent of these hospitalizations were in the nearest community hospital. Eight per cent were in some other hospital in the community; five per cent in some other hospital in the hospital trade area; two per cent in Wichita hospitals; two per cent in private Kansas City hospitals; four per cent in Kansas University Medical Center; seven per cent in some hospital outside the hospital trade area, but within 300 miles; and, two per cent in some hospital more than 300 miles from the local community.

Discussion

This preliminary report has begun to describe the patterns of medical care utilization of residents of three selected counties in Kansas. The observed rate of physician consultations per fortnight of 166/1000 persons is somewhat lower than the 230/1000 recorded in rural Vermont.[1] There is no comparable data previously recorded for Kansas.

The reasons for these differences are not yet evident. The observed annual rate of hospitalization, 175/1000 persons, is almost identical to the 174 hospital discharges per 1,000 persons per year which was recorded in 1966 in Kansas.[2]

Much further analysis of the data is needed to determine the relationship of medical care utilization to the socio-economic and health resource characteristics of the counties, to other consumer and buying practices, to attitudes towards health and towards health care, and to perceived illness and disability. This study has only begun to describe the patient-medical care partnership. As this information is developed, it will be utilized in the evaluation and the understanding of changes that may result from projects funded under Kansas Regional Medical Program.

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Crises, Communications and Care

RICHARD A. BROSE, Dr.P.H.,* ***Kansas City, Kansas***

IN AN ERA OF INCREASING SPECIALIZATION by physicians and hospitals, the poor soul with a bellyache may find himself wandering from office to office, hospital to hospital, to obtain relief from his distress. If his bellyache is indigestion, stemming from too much appetite and too little common sense, his travels could provide a good script for a Rube Goldberg type of comedy. This exercise in frustration might take him from place to place, talking endlessly with people who keep referring him some place else, until at last, he obtains relief, due simply to the passage of time.

True emergency situations, however, often find very similar circumstances which result in time-lags and confusion, disproportionate use of emergency vehicles, and overcrowded emergency departments in some hospitals, while others sit idly waiting for something to happen. Unfortunately, the simple passage of time will not correct these emergency problems, and conversely may add to the seriousness of the primary insult.

The provision of comprehensive, community-wide, emergency care systems is a complex problem involving hospitals, physicians, emergency transportation[1] and rescue services, communications and other logistical and administrative considerations. A discussion of the total planning for these services is beyond the scope of this paper, however, it appears that one area of this planning, *communications,* is often understressed in importance or overlooked entirely. Without adequate communications, the best staffed and equipped emergency services are less than effective, whether the problem is one of the everyday emergencies, or a disaster brought about by a tornado, explosion or plane crash. With adequate communications, time-lag can be reduced, much confusion avoided, and better care provided, when and where it is most needed. Therefore, a communications network, designed and implemented to meet the needs of the medical community, appears to be a "must" factor in planning.

Police and fire services have long ago realized that communications are a vital factor in emergency situations, and have centralized their communications and dispatching of vehicles to provide coordinated efforts. Many medical emergencies are processed through these existing systems, requiring police officers and firemen to make some kind of diagnosis, provide first aid, and to select the hospital to which the patient is to be taken. It is ironic that these men would never be permitted to make diagnostic and treatment decisions within a hospital, yet they are *expected* to make these decisions prior to reaching the hospital. This irony increases logarithmically, when one considers that their decisions must be made at a critical time in the patient's treatment, and that wrong decisions might result in "DOA" added to the victim's name in the emergency department records. The management of medical problems remains a basic responsibility of the medical community, which begins at the time of onset, and not when the patient finally reaches the door of the emergency department.

There is much discussion and planning in many areas of the United States to provide emergency care services to the critically ill or injured. When planning on a community-wide basis, consideration should be given to adequate communications and control of patient flow. One method to provide coordination of efforts has been presented.

A centralized communications and dispatching system, linking ambulance and rescue services to hospitals and other emergency services should, of course, be designed to meet the specific needs of the community it is to serve. If a community has but one hospital and one ambulance operated by the hospital, a single phone call should provide a coordinated response to an emergency. Perhaps two-way radio communications between the hospital and its ambulance is all that should be expected.

In larger, densely populated areas, however, the problem is more complex. With many hospitals, am-

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bulance services, rescue squads, etc., more decisions are required in each emergency and are made by many persons. The multitude of ambulance services available requires a decision to be made by the caller as to which service to notify. The correctness of his decision is largely a matter of chance, as his selection may or may not be the nearest available service, nor the best equipped to handle the specific type of medical problem.

The multitude of hospitals requires an additional decision as to which facility the patient should be taken. These decisions are often made by an ambulance driver, or by the family or friends of the patient. At times, the decision is made by the patient himself. Even if the nearest hospital (and thus the most logical in the absence of prior instructions to the contrary) would be the best facility in terms of providing immediate and specialized care, the decision to take the patient elsewhere can be based on things totally unrelated to the present emergency. Perhaps the ambulance crew has experienced better relations with another hospital, or a friend or family member has been a patient elsewhere in the past. Regardless of the reasons behind such decisions, or how well-meaning the decision makers, these decisions can directly affect the patient's welfare and should therefore be made by the medical community.

To reduce such confusion and the possibilities of wrong decisions, a model of a centralized communications and dispatching system is presented *(Figure 1)*. This system might be a function of local government, a group of hospitals, a medical society, a health department or other type of organization. Regardless of who operates this service, three prerequisites are inherent in these recommendations. First, physicians must be available at all times to the communications center, or the non-physician dispatcher must be highly trained in recognizing serious problems based on signs and symptoms relayed to him by radio or phone. Ideally, a physician should be present at the communications center, however, some direct communications with his office or hospital department might serve the purpose. In metropolitan areas where the patient flow is great, or during times of disasters, the physician's presence at the center is almost mandatory. Second, all ambulance services, hospitals, medical groups, etc., who expect to provide emergency medical services to the community, must be included in the system. Third, the authority of the dispatching center must be final, as its decisions are made based upon the patient's immediate needs and the available services to meet those needs.

The basic responsibilities of such a system are:

1. Receive all calls for emergency medical assistance.
2. Screen calls to obtain details of the emergency.
3. Dispatch the nearest available ambulance(s) to the scene.
4. Notify other emergency services (e.g., police, fire).
5. Direct the destination of the patient.
6. Notify the hospital.

Recommendations for Routine Operations

1. *Receive all calls for emergency medical assistance:* A single phone number, listed in the telephone directory and advertised by other means, is given as the *one* number to call for a medical emergency. It should be stressed that only emergencies will be processed through this system, and that other calls will be referred elsewhere. Although this is not a call service for physicians, some direct contact with the physicians' call service might be desirable. Requests for ambulance vehicles to transport non-emergency patients (e.g., from hospital to rest home) should not be processed through this system, but referred directly to an ambulance service as a matter of private business.

In many areas of Europe,[2, 3] and some areas of the United States, emergency phones are strategically located for public use in calling for assistance. Expressways, interstate highways, and other areas where phone booths are not likely to be located, might be surveyed to determine the feasibility of these emergency phones, which could be directly connected to the communications and dispatching center.

2. *Screen calls to obtain details of the emergency:* Some determination of the nature of the emergency should be made immediately. If multiple casualties are known, as often occurs in wrecks on the highways, more than one vehicle may be needed. If the problem is an illness, the symptoms given by the caller (e.g., pain in the chest, sweating, shortness of breath) can provide a tentative diagnosis on which treatment recommendations and hospital choice can be tentatively made. This screening should best be accomplished by the physician(s) available to or manning the communications center as instructions can also be given the caller as to what to do prior to the arrival of the ambulance. Many physicians do this same type of screening when they receive calls from their private patients, therefore this screening, done by the communications center, is not contrary to current medical practice. If the caller is a physician requesting an ambulance to transport his patient, such screening is unnecessary, as it should remain his decision. Perhaps the only questions necessary would be "Is this an emergency?" "What treatment do you want the ambulance crew to give enroute?" and, "What hospital?" It should be made clear that this proposed system does not interfere with the private doctor-patient relationships, and in fact would provide a

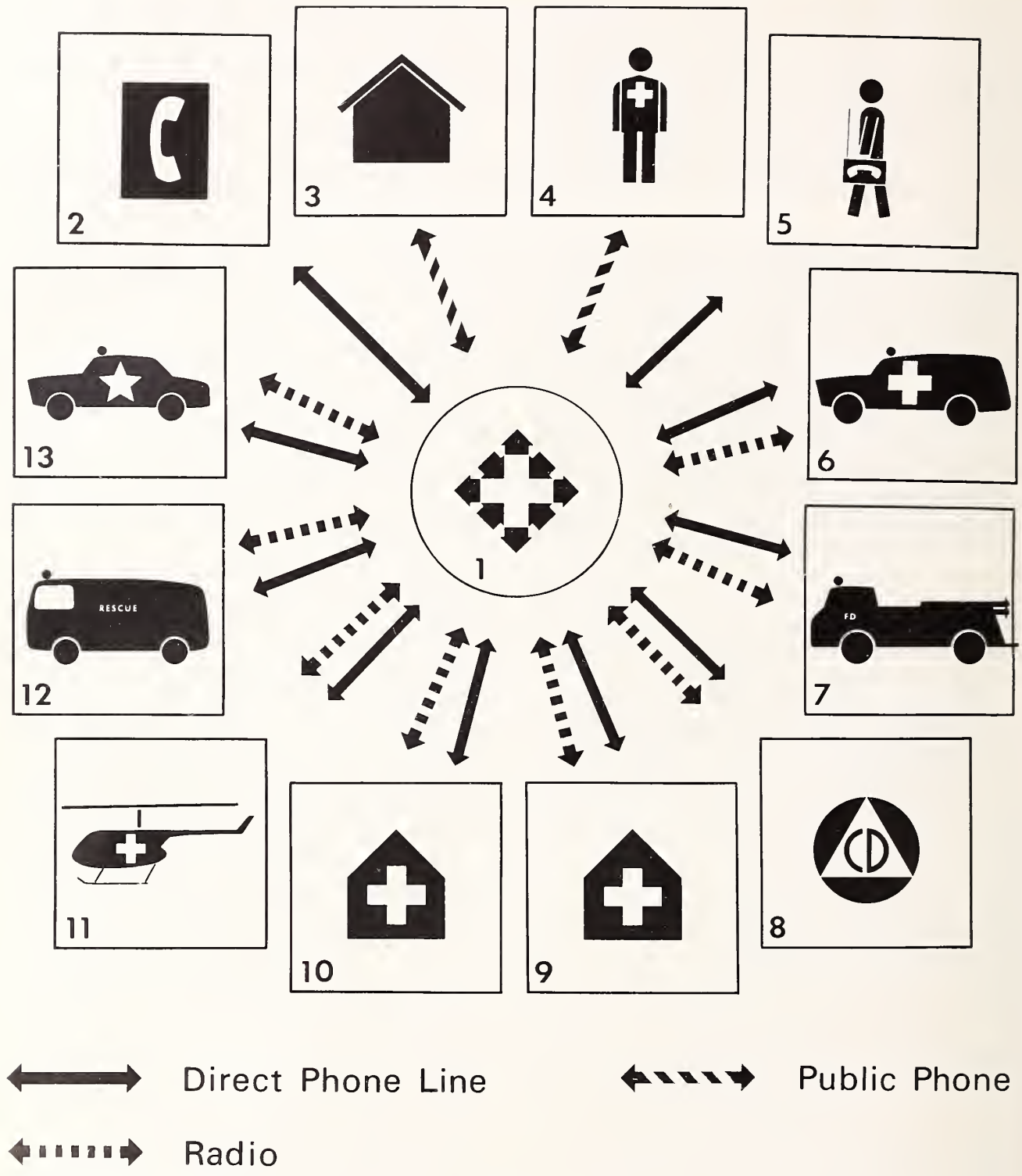


Figure 1

Key:
1. Communications and Dispatching Center
2. Public emergency phones
3. Private home (general public)
4. Private physicians
5. Triage team (portable radio units)
6. Ambulance services
7. Fire department dispatcher
8. Civil Defense
9. Hospital emergency department
10. Hospital emergency department
11. Helicopter and light plane ambulance service
12. Rescue services
13. Police department dispatcher

one-call service which would offer all the services he would need. Basically the system is designed to meet the needs of those persons unable to contact a physician and public accidents.

3. *Dispatch the nearest available ambulance to the scene:* Direct phone lines between the communications center and each ambulance service can dispatch the vehicle from its station. Radio communications between the vehicle and the center can permit the exchange of additional information enroute. If a status board for all ambulance vehicles within the service area is maintained at the communications center, the dispatcher can quickly identify available vehicles. When necessary, he can also direct other vehicles to areas which are unmanned because of a previous call. Ideally, ambulance vehicles should be stationed throughout the entire service area, so that running times would be kept to a minimum. The ambulance services may be operated by the local government, private ambulance operators, or some combination of the two, depending upon local circumstances. With proper planning private ambulance operators should find this system beneficial to their operations in the reduction of "false alarms," unpaid trips, etc. The use of helicopters and light planes as ambulances can be included in this system and processed much the same as ground vehicles.

4. *Notify other emergency services (e.g., police, fire):* Obviously, if the medical problem is a heart attack at home, no other emergency services are needed and no notification of the call necessary to police and fire dispatchers. In public accidents however (e.g., fires, wrecks), other services are needed. Direct communications between police, fire, and medical dispatchers can insure proper notification of the emergency and a coordinated response of equipment and personnel. It should be noted that direct communications between the medical dispatcher and police and fire apparatus is not considered desirable except through their own dispatchers.

5. *Direct the destination of the patient:* As mentioned previously, if the caller is a physician, the destination of his patient should remain his responsibility. In the absence of a private physician, many factors should be considered when a choice of hospital is made. Available space, specialized care, proximity to the scene of the emergency, and the patient's immediate needs are all decisive factors. A status board indicating available space, crowded facilities, specialized care, etc., could provide the dispatcher with the information necessary to make these decisions based on the immediate needs of the patient.

6. *Notify the hospital:* As the vehicle is proceeding to the hospital, a direct phone line to the hospital's emergency department could be used to notify them of the patient's impending arrival, condition and problems. If specialized care is considered necessary, the desired specialists can be notified prior to the arrival of the patient and time-lag reduced even further.

Expansion of the System to Deal With Disasters

The need for communications and control of casualty flow becomes even more critical in a disaster. Several disasters[4] have been documented which point out the need for communications and dispatching systems. Without communications and control of casualty flow, the nearest hospital to the disaster scene is immediately deluged with victims. After that hospital is sufficiently paralyzed, the parade of emergency vehicles begins to other hospitals, until several hospitals are paralyzed. At times, hospitals have mobilized their staff and facilities to meet a surge of victims, but casualties have been taken elsewhere. Such uncoordinated efforts must be considered unacceptable in the light of modern medical and communications knowledge.

Although the workload would increase in any disaster, the operation and responsibilities of the dispatching center would remain basically the same, but could provide some additional advantages.

1. *Triage at the disaster scene:* A team of medical and paramedical personnel dispatched to the disaster scene can establish triage operations with the advantage of direct radio contact with the control center. Lightweight, portable, two-way radios are available for use in this type of operation. Patients with particular problems could be routed to hospitals prepared to meet those needs, and the distribution of all casualties made equally amongst the hospitals in the area. With adequate communications, emergency departments can also be better prepared to provide care, if they know what kind of problems to expect (e.g., burns).

2. *Civil Defense involvement:* If it becomes necessary to involve Civil Defense facilities (e.g., packaged hospitals,[5] blood supplies), the system described could be used to coordinate casualty flow to these facilities, or to direct the flow of supplies to the hospitals where they are needed.

3. *Coordinated police, fire, rescue, and medical care efforts:* If it becomes necessary to close streets to public traffic to facilitate the flow of casualties, such coordination between the police and medical dispatchers could accomplish the task with the minimum of confusion. If police officers are needed at medical facilities to control crowds which will gather there, such requests can be handled expediently. If rescue

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Mental Retardation—

Help for Those Who Will Never Excel . . . The Kansas Center for Human Development

ROBERT HOYT,* ***Lawrence***

SOME CHILDREN ARE DESTINED to bring up the rear. No matter how hard they try or how much special attention they receive, their lives will be severely limited because their intellectual development falls far short of that of normal children. It might seem that cursory attention and make-do facilities would be adequate for their health and education needs. The opposite is true. To diagnose their ailments and to develop whatever potential they have, retarded children often require care and training from more highly skilled specialists than normal children need. Just to get a retarded child to wear a headset so he can be given a hearing test may take weeks of patient attention. And then the work has only begun—the audiologist must evaluate the results of a test given to a child who may be able to neither speak nor write. To teach a child not to eat mashed potatoes with both hands, or to smear her butter on her bread rather than her face, may require special attention for weeks. And to teach parents how to manage their retarded children to make life more pleasant for the whole family requires the counseling and insight of a trained psychologist who can speak the language of everyday life.

Mental retardation is a lifetime condition affecting each facet of the life of the individual. Consequently, any program that attempts to help a retarded person must consider the person in his whole environment.

For these and other reasons, meticulous planning has marked the evolution of the Kansas Center for Human Development. This evolution will not be complete for at least two more years, when the Center buildings are finished and the professional staff moves from scattered, temporary quarters into the new facilities. As careful planning has preceded the building of the Center, professional cooperation will be the foundation on which it is operated—cooperation among the settings and among the numerous representatives of the medical and psychological disciplines involved in mental retardation and related aspects of human development.

The completed Center will be geared to help a thousand children a year to live more productive and satisfying lives despite their mental retardation. It will train about 300 researchers and clinicians each year, young scientists who will join the force of professional talent needed to provide the whole spectrum of services retarded children require from the time their retardation is recognized until they are prepared to live as well, and as independently, as possible outside the walls of our institutions.

The persons who help bring this about, the staff of the Kansas Center for Human Development, comprise a collection of talent from various autonomous groups at the University of Kansas (KU) ; the University of Kansas Medical Center (KUMC) ; and the Parsons State Hospital and Training Center (PSHTC). The Center exists only because these persons devote a part of their professional time to the goals of the Center and to the work at the Center. The disposition of this talent is coordinated by Richard L. Schiefelbusch, director of the KU Bureau of Child Research. "Coordinated" is a key word here. No one "directs" the Center, not in an authoritarian sense. Cooperating agencies and departments pledge time and talent, the use of which is coordinated by Schiefelbusch under the direction of a three-member administrative committee which includes the Provost of KU, James R. Surface; the Provost of KUMC

Research in mental retardation, clinical training for graduate students, and services to institutionalized and community-based retardates will be provided through the Kansas Center for Human Development. It is one of seven such centers being constructed across the nation. The Kansas Center will be coordinated from the University of Kansas in Lawrence. It will have a division there, one at the University of Kansas Medical Center, and one at the Parsons State Hospital and Training Center. About 1,000 children a year will receive training or treatment through the Center. An estimated 300 graduate students studying subjects related to human development will be involved regularly in Center programs as a part of their academic work.

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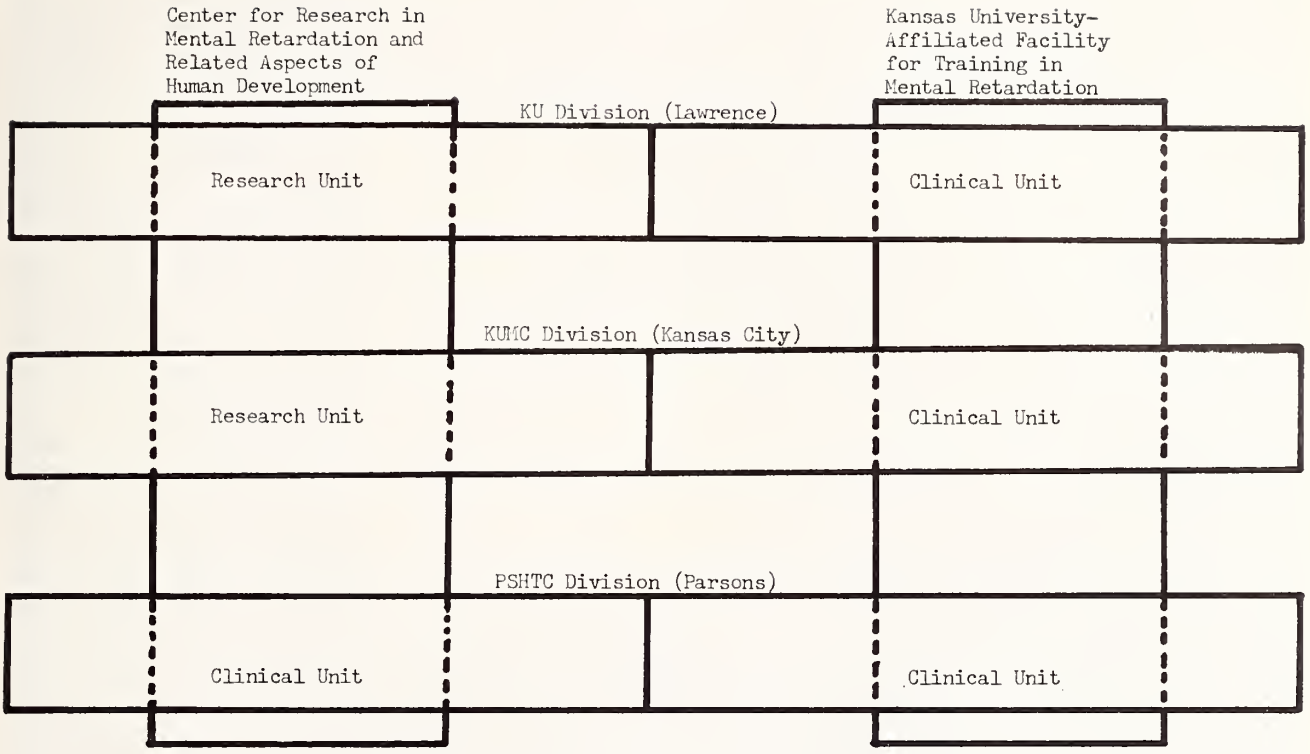


Figure 1. The Kansas Center for Human Development is made up of two sub-centers—a center for research in mental retardation and related aspects of human development, and a Kansas University-affiliated facility for training in mental retardation. The center for research includes a research unit at each of the three settings. The training facility includes a clinical unit at each of the three settings. At each setting, the research unit and the clinical unit comprise a division.

and Dean of the Medical School, George A. Wolf, Jr.; and the Superintendent of the Parsons State Hospital and Training Center and representative of the State Board of Social Welfare, Howard V. Bair. Schiefelbusch serves as executive secretary to this administrative committee.

Coordinating committees for research and training make policy recommendations to the administrative committee in matters relating to staffing, fiscal issues, and the administration of research and training projects which involve more than one setting. These committees include the directors of the research and training units at the three settings, along with the Associate Dean of Faculties at KU, William J. Argersinger, Jr.; the Associate Dean of the Graduate School at KUMC, Russell C. Mills; the Director of the KUMC Children's Rehabilitation Unit, Herbert C. Miller; and the Associate Director for Administration of the Bureau of Child Research, Ross H. Copeland. Schiefelbusch serves as chairman.

The Coordination Office of the Center will soon be located in the bio-life sciences building which is now under construction at KU. This building, which will contain the Lawrence research facility and the clinical training units, as well as the Center's executive offices, will be a wing on the new bio-life sciences building east of Summerfield Hall. New buildings will also be constructed at PSHTC and KUMC. Construction is being carried out with federal funds from the Public Health Service and the National Institutes of Child Health and Human Development, supplemented by state funds. The new research facilities for the three settings have been funded and are being constructed or will soon be constructed. The new clinical training centers have been officially approved in Washington, D. C., and there is every expectation that funding will be officially announced in the near future. The total capital investment in the plants at the three settings is approximately $7,000,000. The annual operating costs of the Center are estimated to be about $1,500,000 when construction is completed and the Center is fully staffed.

How will these buildings be used? Where will the operating money go? As was previously noted, about 1,000 children a year will be helped along the road to more fulfilling and independent lives. Also, a training ground will be provided for about 300 graduate students who have chosen mental retardation and human development as a life work.

Training a moderately or severely retarded child to live in relative independence outside an institution is no quick and easy task. Medical treatments must be

given; bizarre behaviors must be modified into actions which are socially acceptable; and vocational training must be supplied in terms that are understandable by a subnormal intellect. To do an effective job, the whole of the retarded person's life must be considered. Each child must be approached as an individual deserving special care and consideration for his handicaps, and worthy of the effort it will take to help him develop what potential he may possess. This task is often compounded by associated handicaps. Of the 340-350 retarded children born each day (126,000 per year according to the American Association on Mental Deficiency) in this country, three out of four have handicaps in addition to their retardation—impaired hearing or vision, poor muscular coordination, or some physical abnormality. Such medical defects must be treated before any program of education or rehabilitation can hope to succeed.

When the new facilities are completed there will be reception centers at each of the three divisions in Lawrence, Parsons, and Kansas City. The program for each client will begin when the child is referred to the Center by a community physician, teacher, or social worker. An intake review team made up of representatives from education, hearing and speech, neurology, orthopedics, pediatrics, physical medicine, psychiatry, and psychology will observe each child and consider his or her case in its entirety. The team will make recommendations for treatment and training and one or more of the above disciplines will assume the primary responsibility for carrying out the recommendations. This will extend through any required medical treatment, vocational training, and any liaison required after the child is placed in the community.

With their medical problems attended to, and after proper training, many retarded children can hold jobs that contribute to their own support as well as their well-being. Disregarding for a moment the humanitarian aspects, what does this mean? Some estimates conclude that it requires up to $100,000 to keep a retarded person institutionalized throughout his lifetime. Returning retarded persons to the community in unskilled or semi-skilled jobs means that the taxpayers realize substantial savings. This, of course, is not accomplished overnight. It may take several years. Some can be taught to hold jobs as nurses' aides, machinists, janitors, dishwashers and housekeepers, in nearly independent situations. Others must settle for only semi-independent places in life. They work in special workshops under sheltered conditions and live in homes where help is readily available when they need it. In either case there is nearly always a need for someone to pave the way in the community and to provide counseling when unforeseen problems arise. The Center will provide both of these, and will in addition provide some training for parents who need to learn how to manage their retarded children. This training will take place in Center facilities, where the parents come for regular sessions, and in the home environments where specialists from the Center will spend time helping parents and employers in adjusting or overcoming behavioral or psychological problems that disrupt the home or threaten employment.

Graduate students from KU are now participating directly in limited programs similar to the larger one envisioned for the Center. When the buildings are completed and the programs more completely organized, students will participate in greater depth in the whole process, from the intake review sessions to postplacement counseling. Regular medical students will have the opportunity for more extensive training with retarded children. In addition, advanced degrees will be offered to students participating in cooperative programs at the three sites, programs that involve twelve different disciplines relating to mental retardation and human development: child development, clinical neurology, education, hearing and speech, music therapy, nursing, pediatrics, psychiatry, psychology, recreation, social work, and vocational rehabilitation. Students will be associated with the intake review teams and will participate, always under supervision of a mentor, in the treatment and training of the children, in the counseling of parents, and in contacts with concerned persons from the communities. Some of the most valuable training and experience will come through the contacts the students will have with the clients who return to the Center for counseling in problems they face after they have been returned to homes and jobs in the community.

We have considered the clinical aspects of the Center almost exclusively to this point.

This should not be allowed to distort the view of the true nature of the Kansas Center for Human Development. The Center has in fact evolved from research that was begun in Kansas more than ten years ago. It is obvious that the final answer to the problem of mental retardation will not come about by the clinical treatment of the symptoms. The causes must be isolated and the cures and preventives discovered. There are over a hundred known causes of mental retardation, but to date there is no cure for the existing condition, and no preventive measure that is effective against more than a few of the causes. Cures and preventives will be found through research. And the most logical place to have research in mental retardation is near the established services. In research units associated with the clinical units, professional researchers and students at the Center observe retarded children and conduct experiments. Medical answers are sought and extensive research is carried out to develop and apply new ways to modify the behavior of retarded children so they will be more capable of living independently.



Figure 2. The building for the Lawrence division of the Kansas Center for Human Development is under construction on the south slope of Mt. Oread. It will be a four-story wing on the new bio-life sciences building east of Summerfield Hall.

Current projects include research in the communications disorders of retarded children. Here studies are made of learning and retention, language development, and social interaction. These studies lead to the development of better treatment and training which is geared specifically to retarded children. Another program demonstrates how behavior modification techniques can be used to train institutionalized retarded girls to return to community living. Another project is designed to demonstrate speech and hearing therapy with retarded children who have communication disorders. Biological research projects include studies in genetics and early reproduction, biochemistry and metabolism, fetal and neonatal pathophysiology and neurophysiology.

The completion of the new buildings at the three settings will serve to solidify the structure of the Kansas Center and will contribute significantly to the efficiency and standardization of the operation. Most of the projects that will be carried on in the new Center buildings are now being conducted in temporary and limited facilities in various buildings at the three settings. The completion of the buildings will allow a more organized and consistent approach to individual cases. The division buildings at the three settings will become children's centers where retarded children and their parents come for systematic and specialized help, where professionals of all kinds come to devote a part of their professional time to research and training with retarded children, and where graduate students come to receive the professional training they need to carry the work forward. In addition, these facilities (the divisions at the three settings) will become sources of professional help for the communities. Trained clinicians and researchers based at these divisions will go out into the communities, into homes and shops and clinics and businesses, to work with retarded children and the persons associated with them. And the children who have been returned to the community will come back to the division settings when they need

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Birth Defects Center—

—*Evaluation and Treatment for Handicapped Children**

GRACE E. HOLMES, M.D.,** *Kansas City, Kansas*

The Birth Defects Center (BDC) at KUMC was established through a grant from the National Foundation to the Department of Pediatrics in January 1965 and since then approximately 500 patients have been registered for evaluation and treatment. For the most part these children have had multiple defects of a complex nature.

The primary functions of the Birth Defects Center are:

—To provide children possessing congenital defects, especially those multiply handicapped, with a model form of comprehensive evaluation and treatment, long term follow-up and close continuing cooperation between the BDC and the referring physician. The diagnoses of new patients evaluated and treated by the BDC during its last fiscal year are shown in *Table 1.*

—To search for causes of birth defects and to develop new techniques of diagnosis and treatment.

—To educate physicians, nurses, therapists, technicians, and medical social workers in the newest and best methods of care and treatment for patients with congenital handicaps, while also helping their parents and families to understand, accept, and adjust to the related problems.

In order to accomplish these objectives, the BDC utilizes a well coordinated multidisciplinary team of personnel composed of various medical and surgical specialties and allied health personnel, based upon the needs of the individual patient.

The BDC does not limit its services to any geographical area, nor to any group of defects. Any child with a proven or suspected congenital defect or problem of hereditary nature may be registered in the BDC.

The BDC accepts children upon referral from physicians, public health personnel and social agencies throughout Kansas or Missouri. No patients are accepted for registration by BDC without full approval of the family physician. Every effort is made to keep him thoroughly informed regarding diagnosis and recommendations for treatment pertaining to his patient and to enlist his participation in accomplishing the over-all therapeutic aims of the BDC. A good cooperative relationship has been achieved between referring physicians and the BDC.

A questionnaire is sent to the parents of the patient prior to registration and they are requested to forward the records of the mother's pregnancy, labor and delivery, all previous medical records of the patient, and results of previous evaluations or tests to the BDC. These data are reviewed at a staff meeting of the BDC and a decision made as to whether the patient should be handled as an in-patient or an out-patient. If he is to be admitted to the hospital, the data are summarized and placed in the hospital record when the patient is admitted along with recommendations for consultations. If the child is to be evaluated as an out-patient, an appointment is made for an examination by one of the staff pediatricians at BDC. Out-patient consultations that obviously will be required are prescheduled. This is particularly important for those patients coming to the Center from great distances.

When evaluations have been completed, all laboratory findings and the recommendations of the consultants are reviewed by the staff and an appointment made with the parents for interpretation. A complete report is sent to the referring physician. A duplicate copy is sent to the recommended training facility. The social worker helps the family resolve social problems and carry through with recommendations for training by locating appropriate training facilities.

The Birth Defects Center is funded by the National Foundation-March of Dimes with the help of the local county chapters in Kansas. Their grant provides support, either partially or totally, for administative and professional personnel, including a physician, nurse, social worker, and executive secretary in addition to some overhead costs and expendable equipment. The patient's family is responsible for hospital and clinic charges. The grant does not provide for physicians' fees.

* Aided by a grant from The National Foundation-March of Dimes.

** Department of Pediatrics, University of Kansas Medical Center.

TABLE 1

DIAGNOSES OF NEW PATIENTS EVALUATED DURING THE PERIOD, JULY 1, 1966 TO JUNE 30, 1967

Hydrocephalus	5
Congenital deafness	8
Delayed speech	4
Esophageal atresia	1
Congenital heart	5
Down's Syndrome	7
Mental and motor retardation (etiology unknown)	28
Klinefelter's Syndrome	1
Ichthyosis	1
Phenylketonuria	10
Hemophilia	1
Congenital spherocytic anemia	1
Rubella Syndrome	4
Hemihypertrophy	2
Muscular dystrophy	2
Hypospadias	2
Microcephaly	5
Congenital dislocation, hip	1
Turner's Syndrome	1
Cerebral Palsy	9
Malformation, left hand	1
Myelomeningocele (These usually are referred directly to Neurosurgery by outside physicians)	2
Achondroplasia	1
Galactosemia	1
Occipital encephalocele	1
Amelia (L. foot, distal portion of tibia)	1
Hemangioma cavernosa	1
Amyotonia Congenita	1
Hirschsprung's	1
Cystic Fibrosis	20

The name of the patient is placed in a pending file for re-evaluation at intervals as indicated.

The BDC has attempted to serve as a model for providing health care to children with long term, complex physical handicaps. A number of the departments that render partial care to children at KUMC make referrals to BDC to insure complete evaluation, treatment and follow-up. A large number of consultations are obtained through the various specialty clinics of the Medical Center. Several pediatric specialty clinics such as Phenylketonuria Clinic, Cystic Fibrosis Clinic and Genetics Clinic function as a part of the Birth Defects Center.

A birth defect affects not only the involved child but also his entire family. Believing in the value of each human individual, in spite of the presence of defect or handicap, the staff of the Birth Defects Center constantly strives to fulfill its function in this large and increasingly challenging field of medicine.

Mental Retardation

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help they cannot get from their environments.

Each division will have its individual character. The KU division at Lawrence will feature a day-care center designed specifically for behavior modification research and training with retarded children and their parents. The KUMC division will, of course, feature the medical aspects of research, and the development of sophisticated methods of clinical diagnosis and recommendations for treatment. Plans are to include ten motel-like family living units at the KUMC division. Parents of retarded children will thus have a place to stay if they come a great distance from home during the several-day diagnostic process. The Parsons setting will have access to a large population (approximately 650) of institutionalized retarded children in addition to an expanded out-patient population. This will allow research and training to be conducted with large numbers of children under controlled circumstances.

The process of admitting clients, diagnosing cases, and for recommending treatment and training will be standard procedures no matter which of the three divisions a retarded child enters. This will allow more efficient interchange of staff and students and make it easier to use data collected at one setting in experiments conducted at another setting. Since KU and KUMC are about 35 miles apart, and both are about 140 miles from Parsons, rapid and efficient communications are required. Thus the coordinator's office has a technical staff which includes, in addition to an accountant to keep track of the various grants, an editor and writer to handle internal publications and to assist in the publication of informative articles and research work; a cinematographer to prepare audio-visual aids and instructional films and photographs; an electronics engineer to see to the operation of the electronic equipment; a microwave engineer to maintain the microwave link among settings; and a computer technician to assist with computerized data handling. Information will be distributed several ways within and outside the Center: through publications, by microwave transmissions, by a teletype net and through motion pictures and other audio-visual aids.

It will probably be two more years before all the plans and designs and programs of the Center are realized. Meanwhile, the essential work is being carried on. The research and training goes on although it is limited by the sophistication of the facilities and the size of the staff.

The Kansas Center for Human Development is one of 12 centers in the nation which are being constructed for research or training in mental retardation. The Kansas Center is one of seven which will have facilities for both research and training.

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Suicide—

—*in the Kansas City Area: A Pilot Study*

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In the Standard Nomenclature of Diseases and Operations, suicide is not classified as a disease, not even one of the psychobiologic units (i.e., mental disorder). Nor is it listed in the supplementary terms, which do, however, include nailbiting, truancy, vagabondage, vagrancy, etc. Though the connotation of suicide far exceeds the traditional medical definition and extends into the areas of ethics, religion, law, psychology and other aspects of culture, suicidal attempts confront the physician always as urgent matters of life and death, taxing to the limit his medical, surgical and psychiatric knowledge and skill. With the incidence of suicide rising to inclusion among the ten major causes of death in the recent decade, the physician has also been called upon to assume a greater preventative role. Further, the medicolegal issues involving a patient's suicide during outpatient or hospitalized care may become an additional burden to the profession. While the tasks of healing and prevention are clearly of foremost importance, the complexity surrounding this form of death yet defies understanding and conceptualization. Fortunately, the taboo on suicide has lately relented. For instance, 44 states (including Kansas and Missouri) no longer regard suicide as a legal offense (usually adjudged as a felony in the past); the Catholic church no longer considers suicide a mortal sin if committed in a deranged mental state. This change in cultural attitude has been conducive to the study of suicide. One approach is the survey of suicidal rates in various regions of diverse population groups and over different periods of time. If patterns and variations can be identified and correlated among the sociocultural and other factors, our knowledge of suicide will have increased. This pilot study purports a look into the local suicidal incidence in this light. In reviewing the literature on suicide, we note that the private sectors of the community, including church groups, insurance companies, physicians, psychologists and other helping professionals, have largely initiated and maintained the interest in understanding and preventing suicide. The suicide prevention agencies, here and abroad, such as the National Save-A-Life League (New York, 1906), the Ethical Society (Vienna, 1927), the Good Samaritans (London, Bombay, Hong Kong, etc., 1953), Rescue, Inc. (Boston, 1959) and the Friends (Miami, Florida, 1959), were all organized by church groups and private citizens. The International Association for Suicide Prevention, another private organization, was founded at Vienna in 1965. It was the insurance industry in this country which called attention to the recent rising incidence of suicide and one of the authorities on the subject is indeed a statistician, epidemiologist and vice-president of a major insurance company, now retired. (There are more life insurance policies in effect here than in all the rest of the world. As a result of earlier disputes concerning the claims following suicides, insurance officials today consider suicide a risk like any other cause of death on the list and the actuaries calculate this risk into the premium of life insurance policies, usually with a clause excepting only the first two years.) The National Office of Vital Statistics has throughout the years published available figures on suicide. The U. S. Public Health Service has recently established special suicide research and suicide prevention programs in its National Institute of Mental Health, after an initial grant to the Los Angeles Suicide Prevention Center in 1958. The first suicide prevention agency in this area was established in 1966 by the Wyandotte County Guidance Center, Inc. and by the department of psychiatry at the University of Kansas Medical Center.

The prevention of suicide, long neglected, needs the interest and study of physicians and other professionals as well as accumulation of new data. This article provides statistical data acquired in a study of suicides in the Kansas City area.

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Material and Methods

Greater Kansas City, located in the center of the continental United States (the "Heart of America") now includes a number of urban cities and townships, spreading over areas of six counties, Wyandotte and Johnson of Kansas, and Jackson, Platte, Clay and Cass of Missouri. This metropolitan area is surrounded by farmlands dotted with small agricultural communities. Starting as an inland riverport landing a century ago, it has now 1.26 million population and assumes socioeconomic importance through its wheat market and associated grain elevator capacity and wheat flour production; its cattle market, meat packing and food processing plants; farm equipment manufacture and sales; motor vehicle assembly; vending machine manufacture; greeting card industry; steel plant and metal fabrication; and, surface and air communication. Jackson County and Kansas City, Missouri, which overlap, form the largest component in this area. Some of Kansas City, Missouri, lies in other counties and some of Jackson County is outside the Kansas City, Missouri, limits. Because of seven annexations, the city has over the years shown more fluctuation in its boundaries and population than the county. In this report, an analysis was made of: (1) 374 instances of certified suicides at the Jackson County Coroner's Department in the four year period from 1961 through 1964; (2) 146 suicides and 950 suicidal attempts at the Kansas City, Missouri, Department of Police in the three year period from 1964 through 1966 (records on means of suicide and sex distribution); and, (3) 106 suicidal attempts and eight suicides on the files of one police district in Kansas City, Missouri, during the first six months of 1964. For reasons of privacy, the data are not complete as one might wish, but from accessible information and from literature, we shall piece together the local pattern of suicide around 1964.

General Incidence *(Table 1)*

The average suicide rate in Jackson County, Missouri, during the years of 1961 through 1964 is 13.9 (per 100,000 population), basing the total county population on 622,732 (1960 census) and allowing some four per cent annual increase during the four year period. The suicide rate for Kansas City, Missouri, in 1964, as listed by the city department of public health, is 15.2 per 100,000 population. In that year, suicide ranked the tenth most common cause of death in Kansas City, Missouri, following heart disease, neoplasm, cerebral vascular disorders and general arteriosclerosis, accidents, cirrhosis of liver, diabetes and other diseases of the respiratory, digestive, endocrine, and metabolic and genitourinary systems, diseases of early infancy, but preceding infectious diseases. Both the county and city suicide rates of 13.9 and 15.2 are higher than the average national rate of 11.0 (midyear 1963 figure) or the national range of 10.4 to 11.5 per 100,000 population.

While latest data are lacking for comparison, the published and unpublished information from the National Office of Vital Statistics ranks Kansas City, Missouri, among nearby cities of more than 100,000 population in the following descending order of suicidal rates for 1960: Wichita, Topeka, Oklahoma City, Kansas City, Missouri, St. Louis, Little Rock, Kansas City, Kansas, Omaha, Tulsa and Des Moines.

In regional distribution of the nation, the Pacific states, mountain states and Alaska rank the highest; some of the southern states such as Mississippi, South Carolina and Alabama, in addition to Rhode Island and Hawaii, have the lowest suicidal rates. San Fran-

TABLE 1

Ways and Means	*Coroner's Series 1961-1964* 374 SUICIDES M	F	*Police Series 1964-1966* 146 SUICIDES M	F	*Police Series 1964-1966* 950 SUICIDAL ATTEMPTS M	F
Shooting (firearms)	160	24	65	12	35	19
Poisoning (drugs, chemicals)	32	35	5	3	78	208
Asphyxiation (carbon monoxide)	35	13	9	6	25	32
Hanging	24	13	9	8	4	1
Jumping	23	2	3	4	10	8
Cutting (sharp objects)	9	1	3	0	87	131
Others	3	0	7	12	67	245
Total	286	88	101	45	306	644
Male: Female ratio	3.25 : 1		2.24 : 1		1 : 2.1	

cisco, Seattle, Reno, Tacoma, Sacramento, St. Petersburg, Florida, etc., are said to be among the cities with the highest suicidal rates.

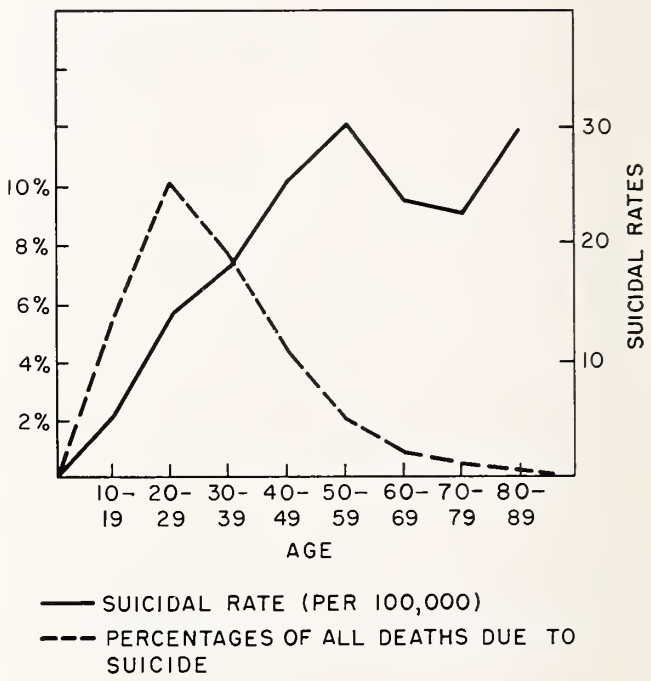
We hasten to add that comparisons of suicide incidences between cities and between states can be misleading, as current statistics are hardly adequate. The definition or certification of suicide varies from place to place. There is confusion concerning equivocal deaths that lie between accidents and suicides. There is yet no uniform national record-keeping on suicides. There is the tendency on the part of physicians and the police, to underdiagnose and under-record suicides in order to save the anguish of the survivors or to protect the "reputation" of the family and the community. Most police authorities require suicidal notes to prove the act and only some 30 to 50 per cent of suicides leave written notes.

There are more incompleted suicides (suicidal attempts) than completed suicides. In the police department series for the whole Kansas City, Missouri, area during the three year period from 1964 through 1966, the over-all ratio between incompleted and completed suicides is 6.5:1, and that for the one chosen police district during the first six months of 1964, 6.2:1. These compare with 7.69:1 in Los Angeles County in 1957. Other studies place the over-all ratio from 7:1 to 2:1; the latter low figure is considered due to inadequate collection of data on incompleted or attempted suicides.

Age *(Figure 1)*

Death by suicide increases in frequency with advancing age and, with advancing age, the ratio between incompleted (attempted) suicides and complete suicides falls. The aged appear to take fewer chances and do away with themselves with more determination. These observations are true locally as well as nationally. The high suicide rate among the aged has been attributed to discouragement, disappointment and disillusion (the three "D's" of depression), precipitated by the wear and tear ("involution") of life, with its accumulating physical and mental impairments; the loneliness and futility of social isolation through the loss of peers and spouses and leaving of the children; decline in social status and prestige through retirement or unemployment; a feeling of being unneeded and unwanted; and, economic insecurity. All these make it difficult to grow old gracefully and graciously for many, especially when the younger years have not been fulfilling. In studies of other cultures, such as West Nigeria (1957-1960) and the traditional Chinese section in Hong Kong (1958), where the old still command respect, prestige and group affiliation, a much lower suicide rate among the aged has been reported. This difference is ascribed to the positive cultural attitude toward the old in these societies rather than the shorter life expectancy.

FIGURE 1: AGE DISTRIBUTION OF SUICIDES, JACKSON COUNTY, MO., 1961 – 1964



What has caused alarm in this "youth centered" culture is, however, the increasing suicide incidence among young people between ages 15 and 24, as reported by the insurance industry. Suicide has become one of the top three causes of death among these young people. In the Jackson County coroner's series, the suicidal rate for age 10-19 is five per 100,000, which soon climbs to ten per 100,000 after age 20. While these rates are not as high as those of the aged, suicides constitute a high percentage of all deaths in the second and third decades.

Sex *(Table 1)*

In the Jackson County coroner's series of 374 suicides in the period of 1961-1964, the ratio between male and female is 3.25:1. In the Kansas City, Missouri, police series of 146 suicides in the period of 1964-1966, the ratio between male and female is 2.24:1. The national trend is similar: Three out of four suicides are committed by men and male suicides outnumber female more than 3:1. In any age group, even for the young, more males than females kill themselves. The suicidal rate for males goes steadily up, sky rocketing in older age groups. In women, there is a gradual rise up to the fifth decade and

then a decline occurs, with the ratio between male and female widening to 8:1 after age 85. Suicide has thus been termed a "masculine behavior." The same male preponderance has been observed in Norway (4M to 1F), Japan (2M to 1F) and West Nigeria (3.6M to 1F). There are cultural exceptions, however, for example, the ratio is 1M to 4F in New Guinea.

With incomplete or attempted suicides the reverse is true; women outnumber men. Generally, in this country, three times as many women make suicidal attempts as do men, and more young women (before the age of 30) are prone to this action. In the Kansas City, Missouri, police series of suicidal attempts, the ratio between female and male is 2.1:1.

Marital Status *(Table 2)*

Most suicidal people (over 60%) in the 1961-1964 coroner's series were married, but then, marriage is the prevailing social institution. When the county population of age 14 and over are categorized into the four marital status of married, divorced, single and widowed, it is the divorced group that has the disproportionally highest incidence of suicide. For the male, the suicidal incidence in terms of marital status are in this descending order: divorced, widowed, single and married; and for the female: divorced, married, single and widowed. The same trend is observed nationally and in other western cultures. It is not the marital status *per se* but rather the divorce or separation which reflects difficulty in life adjustment, intrapsychic and interpersonal problems and social alienation, and widowhood, especially for the male, represents a personal loss and social isolation. Stable marriages with children, like religious faith (conceivable as another form of social cohesion), usually tend to serve as a deterrent to suicide. Indeed, in the private offices of physicians, psychologists, social workers and nurses, the issue of children is often raised, particularly by the women, as the reason not to take the final step of self-destruction. Curiously, in the 1961-1962 study in Israel, it is the single male who has the lowest suicidal rate but the highest rate occurs among the divorced and the widowed, as reported in studies elsewhere.

Records on the marital status of the incompleted or attempted suicide in this area are incomplete, but where figures are available, again the divorced people have the highest rate whereas the married ones have the highest number.

Race and Nationality *(Table 3)*

Only 22 Negro suicides (5.9%) were reported in the coroner's series from 1961 through 1964, while the Caucasian suicides totalled 352 in the same four year period. Since the Jackson County population contains 13.7 per cent Negroes, the rate of suicide among Caucasians is twice that among Negroes. This is consistent with the national trend: Although Negroes constitute more than 10 per cent of the U. S. population, Negro suicides comprise only 5.4 per cent of the total.

Within the local series, the Negro suicides generally occurred in a younger age group; more than half of the victims were in their teens and twenties. Nationally, the figures of 1962 indicate the same pattern: While there is an initial rise in suicide rate for Negro males which matches the rising rate of Caucasian males, this levels off at about 14/100,000 in the late twenties and never rises much above 15/100,000 throughout subsequent years. The Caucasian male suicide rate rises steadily with age, in linear manner up to 60/100,000 by age 75. The sex distribution among the local Negro suicides is similar to that in the local Caucasian. The low incidence of suicide among Negroes in the States is attributed to sociocultural factors rather than a racial variable. Studies of different African cultures show great variations in the suicide rates. In one African society, where a

TABLE 2

SUICIDE AND MARITAL STATUS
(1961-1964, JACKSON COUNTY, MO.)

	*Total Population**			*Suicides*		
	TOTAL PER CENT	MALE PER CENT	FEMALE PER CENT	TOTAL PER CENT	MALE PER CENT	FEMALE PER CENT
Married	67	72.4	63.7	58	56.5	61.0
Single	18	19.8	17.0	17	18.6	11.5
Divorced	5	3.5	5.1	16	15.7	17.0
Widowed	9	4.3	14.2	9	9.2	10.5

* From the Jackson County, Missouri, Census of Population age 14 and over, marital status.

TABLE 3

RACIAL DISTRIBUTION OF SUICIDES AND SUICIDAL ATTEMPTS (by age)*

	Suicides (1961-1964, Jackson County, Mo.)			*Suicidal Attempts (Jan.-June, 1964, Kansas City, Mo.)*		
	TOTAL N	PER CENT NEGRO	PER CENT CAUCASIAN	TOTAL N	PER CENT NEGRO	PER CENT CAUCASIAN
10-19	18	11	89	17	18	82
20-29	44	23	77	32	19	81
30-39	62	5	95	31	7	93
40-49	77	3	97	12	9	91
50-59	82	5	95	7	17	83
60-69	48	0	100	1	0	100
70-79	28	4	96	1	0	100
80-89	13	0	100	1	0	100
90-on	2	0	100			

* In Jackson County, Missouri in 1960 there were 85,211 Negroes in a total population of 622,732 or 13.7 per cent. Of all suicides from 1961-1964, 5.9 per cent were by Negroes. Of the reported attempted suicides in Kansas City, Missouri during Jan.-June 1964, 11.7 per cent were by Negroes.

patriarchal structure prevails with much competition for status among the male as is found in Western societies, the suicide rate resembles that of Western cultures. It also has more suicides among males, a marked increase with age, and an increase among individuals of high status.

Members of the other ethnic groups in this area are too few to constitute statistical significance. Elsewhere in the nation, some tribes of the American Indians and the Chinese are known to have high suicidal rates.

National statistics in 1920 and 1959 also indicate that the foreign born Americans, especially the males, have suicidal rates two to three times higher than that for the total national population. This is particularly true for males born in Sweden, Czechoslovakia, Austria and Germany and reflects the high suicide rates in their native lands. To a lesser extent, this is true of females born in Sweden, Germany, Poland, Czechoslovakia, Austria and Russia; whereas females born in Ireland, Norway, Italy and Mexico have lower rates than the national average. This disparity of suicide rates between the foreign born and native citizens corresponds to the recent finding, in the Midtown Manhattan study, that the first generation immigrants (who have the greatest adjustment to make in a new environment while relinquishing their old identity) have much higher incidence of mental illness than the fourth generation Americans.

Occupation *(Table 4)*

In the county coroner's series, there is listing of employment or occupational status in 98 per cent of the records. By utilizing the 1960 Jackson County Census Tract from the U. S. Department of Commerce Census of Population and Housing of 1960, and allowing annual population increase, estimation can be made as follows: In an average year of 1961-1964, there were 292,594 people (between the age of 14 and 64, of both sexes) in the labor force. Among these, 277,769 were employed and had a suicidal rate of 21.9 per 100,000 and the rest, 14,825 who were unemployed, had a suicidal rate of 20.5. While others have claimed a correlation between unemployment and suicide, this does not seem to be true in this locality for the period of 1961-1964, which were not years of economic depression or war.

When the different walks of life are classified, as in the Los Angeles County study (1957), the domestic workers in private households (practically all being Negro females) have the lowest rate of 4.5 per 100,000. The unskilled laborers have the highest rate of 60.5 and the semiskilled workers (operative, service workers, etc.) have the next highest rate, 36.5 to 30.0. As in the Los Angeles County study of 1957, the higher social status groups in this series do not provide a higher proportion of completed or committed suicides. Other studies (e.g., Oregon, 1950-1961; Tulsa, Oklahoma, 1950-1961) have shown, however, the highest suicide rates among physicians (particularly psychiatrists), dentists, attorneys, top executives and artists.

On the complicated relationship between economics, social status and social cohesiveness on one hand and suicide on the other, some sociologists offer the following observations and working hypotheses: (1) In times of economic depression with bankruptcy, un-

TABLE 4

SUICIDE AND OCCUPATIONAL DISTRIBUTION IN JACKSON COUNTY, MO. (1961-1964)

	Average Census	*Suicides Per Yr.*	*Rate per 100,000*	*Percentage*
Professional, executive, technical, etc.	28,526	4.5	15.8	5
Manager, proprietor, farmer	22,989	5.25	22.9	6
Clerical	56,559	8.25	14.6	9
Sales worker	22,107	4.5	20.3	5
Craftsman, foreman, etc.	34,052	6.25	18.3	7
Operators, etc.	45,117	13.5	30.0	14
Private household workers	5,529	0.25	4.5	0
Service workers	24,650	9.0	36.5	9
Laborer (unskilled)	12,803	7.75	60.5	8
Not reported	25,328	1.5	5.9	2

employment and social disintegration, the incidence of suicide rises. Those at the top of the economic scale have, however, no immunity from suicide and may even have the highest suicide rate during times of prosperity. "The possessors of most comfort suffer most."; (2) Males in either downward or upward "social mobility" are susceptible to suicide. In general, persons in high social status have higher suicide rates than those in low social status. More men commit suicide than women; more Caucasians than Negroes; more commissioned officers than enlisted men; and, more professional people (except ministers and priests) than the "white collars" and "blue collars." "Those who have only empty space above them are almost invariably lost in it, if no force restrains them."; and, (3) Suicide rates are higher for those who have little close involvement with other persons than those who are socially related and tied. The former include the alienated on the skid row, the big city dwellers (versus the rural and small town residents), the divorced and widowed, the single and aged, and the elite who share little with the common people. In great wars (e.g., World War I and II) when everyone suffers, but all serve a common purpose in social cohesion and unity, the incidence of suicide decreases.

Seasonal Variation *(Table 5)*

The Jackson County Coroner's series, during the four combined years, shows two mild peaks of highest suicide incidence; a primary rise in March and a secondary rise in November. This may be more apparent than real as there was variation from year to year (with higher March peaks in 1963 and 1964 than in 1961 and 1962). When correlated with age, the older group did seem to favor spring and winter over summer and autumn as the time for self-annihilation.

It has been claimed that in the nation as a whole and in other temperate zones of the world, there is the more or less characteristic peak in April and May and a decline in December. This is reported to be the case even in Hong Kong, which is subtropical but still shows four distinct seasons. In tropical West Nigeria where they are only two seasons, rainy and dry, the former has the lower incidence.

Within the nation, the seasonal variation of suicides does not really appear consistent. In Los Angeles County (1957), no significant correlation between suicide and seasonal changes was shown. In Houston, the Baylor University School of Medicine and the Houston Veterans Administration Hospital research group was not able to correlate frequency of suicides

TABLE 5

SUICIDES IN JACKSON COUNTY, MO., 1961-1964, SHOWING AGE AND SEASONAL DISTRIBUTION

Age	*Winter* DEC-JAN-FEB	*Spring* MAR-APR-MAY	*Summer* JUN-JUL-AUG	*Autumn* SEP-OCT-NOV
10-29	12	19	14	16
30-39	25	39	39	37
50-on	50	52	38	33
Total (374)	87	110	91	86

and suicidal attempts with 16 variables of weather and "cosmic" influences, including fluctuations in temperature, wind velocity, wind direction, barometric pressure, humidity, visibility, ceiling height, cloudiness, rain, fog, thunderstorms, passage of fronts, moon phases, apogee-perigee cycles of the moon, numbers of sun spots and geomagnetic fluctuations.

The "Scandinavian Paradox" has long intrigued the students of suicide. Located on the same peninsula, Norway has a much lower suicidal rate (7.5 per 100,000) than Sweden (22 per 100,000). Nearby Denmark also has a much higher suicidal rate than Norway and her rate is about the same as Sweden's. One research ascribes the difference to the psychosocial climate in which these cultures differ, and not the weather which they share. The Swedes are said to show rigid achievement expectation, great hatred for failure and repression of anger and the Danes, family-fostered emotional overdependence and

its attendant easy frustration. Both personality types are considered psychologically prone to taking out of aggressions upon oneself.

Ways and Means *(Table 1)*

In both the coroner's series and the police series, more than half of the male suicides (54% to 65%) shot themselves. Only one-fourth to one-third of the female suicides used firearms; these women tended to be young (in their twenties and thirties). The older women resorted most often to poisoning (40%, which was the most common feminine way of suicide in the coroner's series), and then to asphyxiation and hanging. After shooting, the common means of suicide in males were also asphyxiation (mostly by carbon monoxide, occasionally by plastic bag or drowning), poisoning, hanging plus jumping. The local picture reflects the current national pattern of "gun, poison or noose" in suicide, with asphyxiation by carbon monoxide (gas) included under poison.

In incompleted or attempted suicides, poisoning (drugs) and cutting (with razor or other sharp objects) were the most common methods, particularly in women. From the medical viewpoint, shooting leaves less to chance. In cases of poisoning, the dose and the time required may fortuitously aid the rescue effort. Cutting with sharp objects, such as wrist slashing, is usually more amenable to surgical intervention than jumping from high places, hanging and gas. Besides availability, the choice of means may depend on one's seriousness of intent, one's psychodynamic state and the symbolic meaning in a particular culture (e.g., self-immolation in South Vietnam).

Notably lacking in this pilot study is a clear-cut record of suicide by automibile accidents, even though such suspicion has been directed to several one-car mishaps. Both the University of Colorado Medical School and Harvard Medical School groups have in their studies called attention to this means of suicide. Where double indemnity for accidental death is provided by life insurance policies, there may be the temptation of a financial incentive to disguise suicide as an accident.

As to suicide by means of drugs, some medical colleagues have pointed out how barbiturates (most incriminated in cases of suicide by drugs), because of their low lethal dose and easily induced cortical confusion, are more dangerous than "tranquilizers." It may be added here that while suicide *per se* is now considered more a medical than legal matter, aiding or abetting the suicide of another person remains a legal offense (usually manslaughter) in practically all states.

Suicidal Notes

In the series of one police district of Kansas City, Missouri, during the first six months of 1964, 13 of the 106 attempted suicides and 8 of the 17 completed suicides wrote notes, ranging from four words scratched on a mirror with a wax pencil to a 597 word series in four letters. Here, as elsewhere, note-writers give indications of their more serious suicidal intent and the notes appear to underline the degree of premeditation. In attempted suicides, especially when done on impulse, the person seldom takes the time to leave written communications. As already emphasized by others, the contents of the suicidal notes afford important insights into the final thoughts and feelings of such victims before they complete the self-destructive act.

Discussion

We have presented one method of studying suicide, namely the epidemiological survey, the adequacy of which depends on definition of suicide, uniform national record keeping, refinement of statistics, and overcoming the barrier of social myth and stigma. Toward these improvements, both public and private sectors of the community are now striving. To make the studies more manageable and controllable, some are now concentrating on certain particular sections or occupational groups of the total population, such as the studies of suicides among physicians, policemen, veterans, adolescents, the Cheyenne Indians, alcoholics, etc. The over-all crude data from the national population so far have yielded most information on the Caucasian male's proneness to suicide. His ageing, his changing socioeconomic status at either end of the social scale, his disrupted marital status, his mental and physical illness, his previous suicidal attempts plus a family history of suicide constitute an approximate "suicidal profile." Applying this profile to the patient population among veterans, one can see how suicide prevention assumes importance at any general hospital of the Veterans Administration.

Psychological Study of Suicide

This pilot study was done with the understanding that no incompleted or attempted suicides or relatives of completed suicides would be contacted or interviewed, as this would constitute invasion of privacy. With informed consent, however, psychological studies can be and need to be undertaken, and such reports are already beginning to appear. As of now, there are as many psychological hypotheses of suicide as there are personality theories. From the clinical viewpoint, suffice it to say that patients with depression form the greatest suicidal risks, but not every suicidal patient is depressed. Indeed, the patients with schizophrenic reactions and with certain personality disorders are the most unpredictable in their suicidal potential and their suicidal attempts are the most difficult to manage. If suicide is not synonymous with depression (unless made definitionally so), neither is it

always identical with mental illness, as already mentioned. The harakiri in old Japan, the suttee in old India, suicide as a means of punishment in ancient China and in ancient Greece (Socrates did not drink the hemlock of his own will), were all considered culturally normal or honorable. Even in this country, some thought that the pilot in the U-2 incident of 1960 should have righteously committed suicide for his country instead of letting himself fall into the hands of the Soviets. One American physics professor and Nobel laureate suffering from terminal malignancy shot himself at the age of 79. Before this, he made a plea for euthenasia and properly disposed of his scientific papers. But here we enter the realm of "altruistic" suicides and ethics.

Physiochemical Study of Suicide

Well trained in biological and physical sciences, physicians are naturally interested in searching for laboratory indicators of suicidal risk. The clues are being actively pursued. In some psychotically depressed patients, the 24-hour urinary 17-hydroxycorticosteroids are significantly elevated and the elevation correlates with suicidal attempts. Electroconvulsive treatment (E.C.T.) has the effect of decreasing the elevated 17-hydroxycorticosteroids. In another study on elderly psychotic depressives, the plasma cortisol rises with the severity of depression and decreases if the illness responds to antidepressants. The residual sodium level has also been observed to elevate during depression and returns to normal as depressed patients improve. Lithium, effective in curbing mania in many instances, is being tried as a prophylactic against depression during the interval phase of manic-depressive reaction and other forms of recurrent depression. Some have observed that women have the highest incidence of threatened suicide during the first four days of menstruation, the second highest during the four pre-menstrual days and the third highest during the midcycle.

Animal Experimentation

We have always relied on animal experiments for elucidation in physiology, pharmacology, toxicology, infectious diseases, endocrine and metabolic disease, surgery, genetics, etc. Recently, we have used animal experimentation to study the effects of cigarette smoking, organ transplantation, contraceptives, sleep and sensory deprivation, maternal and social deprivation, and the population explosion. Still, in spite of Darwinism, we hesitate to compare the behavioral repertoire of animals and men (except perhaps when we use Aesop's fables to teach our children). We tend to see the mind and "will" as uniquely human, and the human being alone as able to thwart the "instinct to live" nobly (e.g., "Give me liberty or give me death") or perversely (e.g., suicide, alcoholism and drug addiction). If suicide is defined as willful self-destruction, then we have to postpone research until neurological scientists can better identify and quantify the "will." There are, however, anecdotes and observations about horses and dogs languishing to death after the demise or departure of their masters, the mass drowning of lemmings following their leader, and the "executive monkey's" starving himself to death in a certain experimental situation. To behavioral scientists, suicidal behavior can be defined in terms of recognition of death, intent of death and choice of death, and all these are within the possibility of experimentation and analysis, the fact that animals do not use verbal symbols notwithstanding. Some behavioral scientists and psychiatrists are approaching the problem of suicide along this line. In inducing depression such as by reserpine, testing the efficacy of antidepressants and formulating the catecholamine hypothesis of depression, animal experimentation has already been extensively used. It is conceivable that both the behavioral and physiochemical approaches can be combined in the same experimental animals.

Research on Survivors of Suicide Victims

In suicide as in no other form of death, do survivors suffer so much from painful loss, regret, shame, guilt and disapproval. "You are not a good doctor, minister, nurse, parent, spouse, child, friend, colleague, or neighbor; you contributed to his death by your negligence or by your failure to make his life bearable." Sometimes, a response of anger may occur on the part of physicians, nurses, other professionals, relatives and friends for one's proffered help has been refused outright in the suicidal act. While a hereditary factor has been ruled out by twin studies, it is known that suicides tend to repeat in the same families. Thus, the reactions of the survivors form another important area of study and understanding.

Summary

An analysis was made of 374 suicides recorded by the Jackson County, Missouri, Coroner's Department (1961-1964) and of available information on 146 suicides and 950 suicidal attempts from the records of the Kansas City, Missouri, Department of Police (1964-1966). The local 13.9 to 15.2 suicide rates (per 100,000 population) are higher than the national average of 11.0. The high rate in the aged, the male to female suicide ratio of 3.25:1 to 2.24:1, the suicidal attempt to suicide ratio of 6.5:1, the lower incidence of suicides among Negroes as compared with Caucasians, the most frequent employment of shooting, poisoning, hanging and jumping in

(Continued on page 131)

Emotional Stress—

—*Psychogenic Unconsciousness in Children*

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A SUDDEN PROFOUND LOSS of consciousness may be the first and sometimes the only symptom indicating that a child is suffering from a severe emotional conflict. Generally, the child is found lying "unconscious" or falls over in a "fainting spell" or "convulsion." A review of literature reveals a paucity of articles concerning this disorder in children. The articles dealing with hysteria in children[1] indicate alterations of consciousness, but not of the nature described in this paper. Ziegler[2] has indicated that one must be careful in evaluating apparent cases of syncope, since the patient may be suffering from an underlying convulsive disorder which was precipitated by emotional stress. Recently Dickes[3] has given an extensive review of this subject and related it to hypnoid states. However, his studies were of adults. He has also indicated that in certain cultures such as the Balinese, pathological alterations of consciousness occur in children when frightened. He takes exception with other authors who have referred to these states as states of "sleep."

Our experience with four children would tend to parallel that of Dickes' experiences with adults. Typically these children have profound alterations of consciousness brought on by strong feelings of anxiety and/or sexual excitement. All of these children have had either an anxiety-producing or highly sexualized relationship with their father. They were all referred to a children's hospital for evaluation and all, with the exception of one case, were admitted to the inpatient service, which is a reflection of the difficulty in making a definitive diagnosis regarding the nature of the child's alteration of consciousiness. The superficial appearance of such alterations in consciousness seem to vary all the way from what might be described as "sleep," through "spells" or "convulsions," and finally, to "coma." A clinical example of each type of alteration will be given.

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Pathological Falling-Asleep

Ellen, a 10-year-old Negro female was admitted to Children's Mercy Hospital with the following story. On her way to school, while accompanied by another little girl, she fell, and according to the other little girl, struck her head on the pavement. She continued to lie there for approximately a minute. The little girl then helped Ellen to walk the remaining two blocks where they caught the bus. She fell again while waiting for the bus and this time incurred a bloody nose. The bus picked up the two children and the patient fell asleep on the bus while being transported to school. When she arrived at school they had difficulty awakening her. Finally, when they did get her awake, she was incoherent. It was at this point that she was brought to Children's Mercy Hospital for a physical examination, which was normal, including an E.E.G. She was evaluated in the Child Psychiatry Clinic ten days later, and in that interval she had gone to sleep twice on the bus while going to school.

Children can suffer severe alterations in consciousness when faced with the emergence of strong instinctual feelings of a sexual or aggressive nature. These changes need to be differentiated from sleep, seizures, and coma. They respond to hospitalization and psychotherapy.

In an interview with the mother, she described the father as being hotheaded, and speculated that he was mentally ill himself and needed help. She said that he had struck her and when he whipped the children, he invariably whipped them too hard. Consequently, she frequently found herself trying to protect the children from him. She told us that the patient, Ellen, had told her that she heard her father calling women on the phone and talking with them about his anger at his wife and how he planned to whip the mother, or stop her from driving the car and various other threats.

In an interview with the father, he stated that he felt that his wife did a poor job of rearing the children, and complained that the children were lazy and that the mother let them have their own way. He said he thought that Ellen was putting on an act and threatened if the tests at the hospital didn't reveal an honest problem, he would "beat the tar out of her."

During the psychiatric interview with the child, she suddenly began to cry. She said that her father wouldn't want her to tell about this, but that she was afraid of him because he had a terrible temper. She talked about his choking the mother, and the necessity of calling the police. She told of another occasion when the father had a temper outburst and broke all the furniture in the house. She corroborated and expanded on the history as already recorded.

Following the evaluation of this family an interpretation of the emotional nature of the child's unconsciousness was given to the parents. The father declined further treatment. Apparently he did talk with the girl about her passing out, which he felt she was doing because she wanted to be changed to another school. The child ceased having these attacks.

A followup six months later with this family indicated that she was getting along well. And a follow-up one year later, with the school, indicated that the child was free from any disorder of consciousness.

This kind of behavior needed to be differentiated from narcolepsy, convulsive disorder and syncope. Physical, laboratory and electroencephalographic evidence were against these diagnoses. Psychiatric evaluation supported a psychogenic disorder. The course of the child's recovery from the symptom would indicate that the pathological sleepiness was indeed psychogenic in nature. No formal therapy was given this child because of the parents' refusal to participate in such a program. However, it is obvious that certain changes in the family situation came about as a result of the evaluation.

Pathological Unconsciousness Resembling Convulsive Disorder

Jeanette, a 13½-year-old Negro female was hospitalized at Children's Mercy Hospital because of passing out spells which she had at home. Physical examination and laboratory examination, with the exception of E.E.G., which unfortunately was not done, were normal. Apparently the loss of consciousness occurred when some of her sisters and her boyfriend and some other boys in the neighborhood were teasing her about an ugly boy. They were saying to her that she liked this boy. She began crying and sat down on the front steps of her house. The other children went next door and the patient fell over in a state of "unconsciousness." She was later told that her younger nephew had found her on the steps and that he and her older brother then took her into the house and put her into bed, and subsequently, brought her to the hospital, although she denied remembering this. During the evaluation and subsequent treatment interviews the patient revealed numerous conflictual areas in her family. It was discovered that the father was a severe alcoholic with heart trouble. He did not work. Periodically he would get drunk and would beat the children and his wife. Jeanette felt very ambivalent about her father. She was constantly afraid that he would beat her or her siblings or her mother. She also was able to express death wishes toward him, which had been very much in her mind at the time she had had the lapse of consciousness. She revealed some information concerning his making some kind of sexual advance toward her sister at one time, and also talking to her about sexual matters which frightened her. She continued during the first month of treatment to have lapses of consciousness at school, including one that occurred while she was in the swimming pool. One of the girls said, "Look, Jeanette is asleep in the water," and she was pulled out. However, she apparently had not aspirated any water and was in no danger of drowning. Following a single interview that the father attended, he told Jeanette that he had lied to the therapist and covered up things. He said that he wasn't going back anymore because the therapist would find out that he had lied. This led to another serious alteration in Jeanette's state of consciousness, during which time she stood for nearly two hours in a catatonic-like state. The mother was described as a religious fanatic who spent most of her time at church to escape her unhappiness with the marriage and the problems within the family. After approximately a month of therapy, Jeanette was free of symptoms both at home and at school and has continued to be free of symptoms until the present time, a period of approximately a year. She continues in therapy currently, even though her parents will not participate.

This case illustrates very clearly the strong sexual and aggressive conflicts in the patient. She expressed a fear of aggression as well as fear of her own aggressive impulses on numerous occasions. She revealed several episodes of traumatic sexuality in addition to her father's molesting her sister. The patient herself had been molested by a stranger while she was wearing a pink dress. Following this episode, the child developed an obsessive fear of the color pink which finally was resolved in treatment. These facts would tend to support our contention that either strong aggressive or sexual impulses can precipitate these alterations in consciousness. In addition to the case presented above, we have another 14-year-old female with a normal physical examination and E.E.G., who had loss of consciousness at school on four different

occasions. Finally, she was referred by the school for evaluation. She gave long history of having been molested by her stepfather. She was a very sexually provocative child and finally got married at the age of 15. She now contends that her second stepfather makes sexual advances to her, which she probably helps to provoke.

Pathological Unconsciousness Resembling Coma

Susan, a 13-year-old, white female was admitted to Children's Mercy Hospital in a "coma." The patient had attended an air show at the local air force base and while waiting for the bus had become unconscious. She was admitted to the air force hospital. Blood was drawn and an I.V. consisting of normal saline was started. The patient was then transferred from the air force base to Children's Mercy Hospital. While gastric lavage was being done, she regained consciousness and complained of a headache. She stated that she had had dizzy spells before but had never passed out. She become unconscious again after a few minutes. Physical examination on admission revealed a temperature of 38 degrees, a pulse of 82, a blood pressure of 140/80, her respiratory rate was 25 per minute. She was a well developed white female. She was comatose and did not respond to painful stimuli at first, but ten minutes later she responded and opened her eyes. The pupils were round and equal and reacted to light; there was no papilledema. Neurological examination revealed normal reflexes and no Babinski. On the same day the patient was seen by a neurosurgical consultant who was suspicious of acute cerebral hypertension due to a midline lesion. All studies of blood and electrolytes were normal. The white blood cells in the spinal fluid were mildly elevated. However, the pressure was normal as was the sugar and the protein. Salicylate level was negative. Cerebral spinal fluid culture showed no growth. Skull x-ray was normal, bilateral common carotid arteriogram and right vertebral arteriogram were normal. Pneumoencephalogram was normal. Chest x-ray was normal. Electroencephalogram was normal. During the first hospital day the patient had several episodes of unconsciousness. They came on very suddenly and during these periods she was unresponsive and did not react to painful stimuli. Between times she could talk normally but kept complaining of her head hurting. Following these studies she was referred for psychiatric evaluation.

She was emotionally labile. She expressed a great deal of conflict about growing up. She did considerable crying during the interview and following the interview behaved in a typical hysterical manner. Outside the office she acted as though she could not walk. When she was told to get up, she crawled up the wall and regained her footing and went staggering down the hall in a gait which was classically conversion hysteria. Her first admission lasted one month. During this period of time it was ascertained that she came from a severely disturbed home situation and that the coma was actually caused by a conflict in the sexual area. The mother had warned the youngster repeatedly that men were dangerous, that they would rape and murder girls, and that the patient should stay away from the air force base. The patient, on the other hand, was curious and interested in the airmen. She had at one time unbeknownst to her parents visited the air force base. On the day that she became unconscious, two airmen were following her and her girlfriend and whistling at them. Apparently the conflict between the desire to respond to the airmen's overtures and the admonitions of the mother had led to the child's falling over in a deep faint.

Her second admission was two months later and lasted three weeks. This time the youngster was admitted because she inflicted several superficial cuts on her leg with a knife. Apparently this behavior was precipitated by an argument with her mother after which she became despondent and on the following day had a conflict with the mathematics teacher which added to her depressed feelings. Prior to admission, she developed severe temporal headaches and was not able to sleep. In fact, she got out of bed, dressed, and went out for a walk. She spent the entire night walking up and down the road by the air force base. During the night she became so despondent she cut her leg several times with a hunting knife. On the morning of admission, her father found her wandering up the road and brought her to the hospital. Again she was given psychiatric treatment and discharged to her family.

It was during this admission that we discovered from her married sister that the father had had incestuous relations with the patient prior to her first admission. This occurred when the mother and father got in a quarrel over the use of contraceptives. The mother wanted him to use contraceptives and he refused so the mother refused sexual relations with him. He then began having sexual relations with the patient and eventually the mother discovered this. There was much talk about the father being sent to the penitentiary if this should ever leak out. And it, therefore, became the guilty open secret of this family. The child's loss of consciousness on the previous admission then became more clear. This was probably related to her sexual desires for the airmen and her fear of giving in to them. This is further supported by her third admission which occurred eight months after the second admission and lasted five days. At this time she was admitted because she had had an

argument with her family over her desire to get married. Her family objected to this, the child became hysterical and apparently "blacked out." Subsequently, in the hospital, she complained that she was having abdominal pain and stated that she was pregnant. She had attempted to force her parents into allowing her to marry a boy that they objected to by trying to become pregnant. Followup of this patient has indicated that she has done poorly. She is free of lapses of consciousness but her sexual acting-out has led to an illegitimate pregnancy and an anti-social adjustment.

Discussion

The mechanism of such severe alterations of consciousness remains puzzling. Dickes has related it to a hypnoid state, Kanner[4] seems to relate it to fainting, although he does not describe specifically the kinds of lapses of consciousness discussed in this paper. He does, however, indicate that about 50 per cent of fainting is unexplained and states that fainting can last up to several minutes. Perhaps more intensive evaluation of the unexplained fainting would reveal a disorder similar to the ones described in this paper. On the other hand, it seems unlikely that the mechanism of cerebral anemia could explain prolonged losses of consciousness up to as long as a half-hour. The use of the term "hypnoid state" seems in some ways to offer more of an explanation. Unfortunately, the nature of hypnosis and hypnoid states is poorly understood. Most definitions of hypnosis used the term "altered state of consciousness." So, the term offers little in clarifying the pathogenesis of these episodes. The loss of consciousness in these children may be akin to the phenomenon seen in many animals and referred to as "playing possum." Foxes, wolves, snakes, toads and insects all "play possum." Hartman[5] has made an extensive study of the apparent change in consciousness in opossums. He believes that the condition is mediated by the nervous system and is a result of changes in the brain and ventral ganglia. He proposes that in the nerve centers there are certain labile substances that are harmless in themselves but that serve as precursors to substances that paralyze. Hartman believes that the stimulus of a touch causes nerve impulses to act like percussion caps setting off a charge. The resultant new substances so stimulate the motor nerve fibers that all of the muscles on both sides of the joints contract, causing a stiffening of the limbs. As the paralyzing substances are diffused from the nerve cells, the paralyzed animal recovers. Certainly death-feigning has survival value, and it is surprising that this trait does not occur more frequently in wild animals. However the studies of Norton, Beran, and Misrahy[6] cast some doubt on Hartman's explanation. They implanted electrodes into opossums and failed to show any abnormal electrical reaction of the brain while in the "possum state." Study of our cases in children throws little light on the mechanism. Empirically it would appear that the reaction occurs at a time when the ego is threatened by exceptionally strong instinctual feelings and that the ego protects itself from their emergence by altered consciousness. Certainly in this sense it seems to serve a defensive purpose. From the practical standpoint, recognition of these cases seems to be extremely important in order to prevent errors in diagnoses, such as epilepsy, coma, or narcolepsy. It would appear that if this condition is considered, and an adequate psychiatric evaluation done, the nature of the disorder will become apparent and the need for psychotherapy obvious.

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Mental Retardation

(Continued from page 105)

The completed Center will in essence be a sizeable cooperative financed by federal, state and private funds. It will cut across nearly every medical and academic discipline in the related aspects of human development. It will involve the highest levels of the University administration and will reach out into some of the most humble homes in the communities. An organization at once both humanitarian and practical, involving both research and application and designed to take handicapped children from passive or limiting existences, to help them and change them, and to return them to their homes and to their communities as integrated, healthy, contributing members of our society.

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Growth and Development—

The Challenge of Short Stature

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THE PURPOSE OF THIS COMMUNICATION is to offer some general principles found helpful in the evaluation and treatment of patients with short stature. The demand for this type of evaluation is not infrequent and is increasing, as can be seen in *Table 1,* which lists the new diagnosis recorded at KUMC over the past 20 years. All of the entries in this table had short stature, defined as height below the third percentile on the Stuart Height Curve of the Harvard School of Public Health, or a relative drop of 25 per cent within the normal range of height curves on consecutive evaluations. The following discussion concerns the method of identifying the above conditions in any given patient presenting with short stature.

The understanding of short stature in children requires a thorough investigation of each patient's growth characteristics far beyond the height and appearance at any one moment in time. In fact, growth *rate* in these evaluations, as contrasted to fixed height, is so important that two observations at least six months apart are usually necessary to make any sensible diagnosis. Characteristics found helpful are noted in *Table 2* with their expected association in the more common causes of short stature.[1, 2]

Cretinism[1]

This condition, of ancient recognition, is a common cause of severe growth deficiency in the postnatal type of short stature. It is further characterized by associated mental retardation and neurological damage. The condition is present at birth and should be diagnosed in the neonatal period. The difficulty in such an early diagnosis derives from the absence of the classical growth defect and demonstrable brain damage at birth. Such patients do not have immediate feeding problems, seizures, nor associated maternal polyhydramnios. They are normal birth length and are not edematous. Subsequent growth failure is characterized by an elevated or retarded upper-lower ratio (i.e., that portion of length above and below the superior border of the symphysis pubis. Normal growth is accompanied by a drop of this ratio from 1.7 at birth to 1.5 at age one year to about 1 at age eight years).

Neonatal cretins are inactive, limp, and have prolonged physiological jaundice. They develop dull facies and grey mottled, cold, dry skin. Their cry is infrequent and hoarse. The umbilical hernia persists. They have no simian crease of the palm, eye defects, nor microcephaly.

Characteristic laboratory findings are macrocytic anemia and a pathognomonic low protein-bound iodine (PBI). It is important to recall that neonatal PBI's are normal in the higher 5 to 10 microgram range. The diagnosis should be suspected from the clinical signs and proven by the PBI and the absence, on x-ray, of the normal birth epiphyses at the knee and the foot. The condition cannot be ruled out by a normal pulse rate nor by the absence of edema or constipation.

The challenge to the physician offered by short stature in the child and adolescent remains formidable. In recent years great breakthroughs have been made which have solved some problems only to point up new areas of dim understanding. Many categories of growth failure remain a dilemma but all patients with short stature offer a great opportunity to the clinical and research physician alike to test his acumen and perseverance.

Inborn Genetic or Chromosome Errors[2]

These patients are protean and can mimic cretins in their hypotonia and severe mental retardation. They frequently demonstrate *pre* natal growth failure. The growth failure is associated with a normal U/L ratio and a normal bone age. Often serious aminoacidureas or chromosome defects are present. These patients are afflicted with complex anomalies, seizures, and specific signs—often in the eye. A simian palmar crease and microcephaly are common. They are more obviously pathological at birth than the cretin.

Achondroplasia[2]

This is a familial condition present at birth and characterized by *pre* natal growth failure and per-

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TABLE 1

INCIDENCE OF SHORT STATURE

Condition	Total	M	F	Since 1962	M	F
1. Constitutional delay	80	59	21	60	48	12
2. Hypothyroid (late)	32	10	22	21	7	14
2A. Cretin	14	5	9	7	2	5
3. Primordial dwarf	29	15	14	20	12	8
4. Ovarian dysgenesis	27	27	—	16	16	—
5. Pituitary dwarf (total)	14	5	9	4	2	2
2°	4	1	3	None		
6. Achondroplasia	7	3	4	5	2	3

All included above were below the 3rd percentile in height.

2°—Growth hormone deficiency secondary to hypothalamic tumors

M—Male

F—Female

sistent retardation of the U/L ratio. Mental retardation of a mild degree and seizures can be associated, but muscle tone, activity, and bone age are all normal. A cardinal feature of achondroplasia is prominent frontal bossing of the skull. Macrocephaly and frequent hydrocephaly have been noted and the latter condition is believed directly related to their mental retardation.

Primordial Dwarfism[2, 3]

This form of growth failure is always prenatal, by definition, is usually severe, and stems from varied etiology. Upper-lower ratios are not affected but growth failure can increase postnatally. Many primordial dwarfs, however, maintain normal growth rates after the first few months of age. In later years these patients may be no further behind on growth than they were at birth. The primordial dwarf is frequently retarded mentally, has numerous anomalies and is microcephalic. A special type, known as the Russell or Silver dwarf is also asymmetrical.[4]

The primordial dwarf is always fragile and of aesthenic build with scant adipose, subcutaneous, and muscle tissue mass. They are high-risk infants prone to hypoglycemia, hypocalcemia, and seizure disorders. Well known examples of this condition are Seckel's bird-headed dwarfs,[5] the rubella syndromes, and small size secondary to twinning.

Ovarian Dysgenesis (Turner's Syndrome)

This cause of short stature in females is characterized by typical anomalies, ovarian dysgenesis, sterility, and by an XO or XO/XX karyotype. The earlier this condition presents the more severe the involvement, as a general rule. The degree of involvement ranges all the way from severe cardiac anomalies lethal to the fetus, through the patient with coarctation of the aorta, renal anomalies, total ovarian agenesis and severe short stature; and finally to the mild case which presents only with short stature. A corollary of this latter category demands that ovarian dysgenesis be ruled out in *any* female with short stature. Such a rule-out may be difficult unless a competent chromosome laboratory is available. Hence the diagnosis is often not made until amenorrhea becomes the chief complaint.

In many cases ovarian dysgenesis is diagnosable at birth by the presence of webbing of the neck, low hair line, hypoplastic or inverted nipples, hypoplasia or absence of the nails, and the presence of idiopathic edema of the dorsum of the hands and feet.[6] Coarctation of the aorta[7] and severe renal anomalies[8] are present in about one-third of the cases and should be ruled out on all patients with ovarian dysgenesis.

Beyond the neonatal or infancy age range the edema of the extremities is almost invariably absent and neck-webbing becomes less and less obvious. The neck condition must be distinguished from the short neck and missing cervical vertebra seen in the Klippel-Fiel syndrome, a condition having no chromosome nor ovarian pathology.

In contrast to receding neck signs and diminishing edema, a new sign of ovarian dysgenesis often occurs when school begins. This has to do with impaired intellectual function, specifically a motor-visual dissociation.[9, 10] These intellectual aberrations are unique in that verbal and reading skills are often normal. In contrast, writing is performed poorly and the patients demonstrate a curious blindness for three-dimentional perception. They become confused in directions and cannot judge distance. These defects can be readily detected by a good psychometric examination, especially if the examiner knows to test these areas.

Late Onset Hypothyroidism[1]

Hypothyroidism can occur at any age in a patient who was normal at birth. The distinction from the cretin can be made by the presence of a goiter in the late onset hypothyroid which is never true of the cretin. Many causes of late onset hypothyroidism exist but they all present with thyroid enlargement and growth failure in the pediatric years.

The growth pattern is less pronounced than seen in the cretin and is complicated by a variable duration of normal growth prior to the growth decline. This type of patient requires sequential growth measure-

TABLE 2

CHARACTERISTICS OF SHORT STATURE

Condition	*Onset*	*Activ.*	*M/R*	*Anom.*	*U/L*	*H/C*	*Adol.*	*B.S.*	*BA/DA*	*Treatment*
1. Cretin	Post	Low	Yes	No	R	N	R	N	R-Mal.	Thyroid
2. Inborn errors ..	Pre	N	Yes	Yes	N	(−)	N	N	Mal.	Variable
3. Achondroplasia	Pre	N	Yes	Yes	R	(+)	N	N	N	None
4. Primordial	Pre	N	Yes	Yes	N	(−)	N*	N	R-N	None
5. Ovarian dysgen.	Pre or post	N	No	Yes	N	N	R	Abn.	N	Estrogen
6. Constitutional delay	Post	N	No	No	N	N	R	N	R	Possible testos.
7. Hypothyroid ..	Post	Low/ Norm.	No	No	N	N	*	N	R-Mal.	Thyroid
8. Pituitary dwarf	Post	N	No	No	N	N	R	N	R	HGH, thyroid, cortisone, sex hormone

Pre or Post—Refers to onset of short stature with respect to birth
N—Normal
R—Retarded
Mal.—Malformed
* See text
M/R—Mental retardation
Anom.—Anomalies
U/L*—Upper-lower ratio
H/C—Head circumference
Adol.—Onset of adolescence
B.S.—Buccal smear
BA/DA—Bone age/dental age

ments to define a declining growth rate. Isolated measurements may fail to reveal a growth problem if the height is not below the third percentile whereas interval growth between visits six or more months apart may reveal a total lack of growth and a downward change in the patient's percentile ranking in the growth tables. This point needs stressing because, in our experience, growth failure is sometimes the only sign of thyroid deficiency of slow onset.

Defining the growth problem further by a search for hypothyroid symptoms may help, but the physical examination may be the most accurate starting point if the history is lacking. Upper-lower ratios are retarded in hypothyroid patients, *dentition* is delayed, bone age is delayed, and the skin is usually very dry and rough. Mental deficiency is seldom present and even activity, although objectively declining, may seem normal because of its gradual onset. The thyroid gland is often enlarged, soft, smooth, nontender and without nodules. Occasionally, the ankle jerk is slow in returning to the neutral position.

The vital importance of diagnosing thyroid deficiency, no matter what the etiology, is in the ease and minor expense of treatment. The excellent prognosis and catch-up growth further emphasizes the importance of recognizing this condition by careful growth evaluation as a general routine in the pediatric age group.

Hypopituitary Dwarf (Growth Hormone Deficiency)[1]

This interesting category of short stature has received recent attention because of the availability of human growth hormone for treatment. It occurs as an idiopathic anterior pituitary lesion or secondary to hypothalamic tumors. The condition is quite rare as can be seen in *Table 1,* but is always severe. It can occur with or without other pituitary hormone deficiencies.

The characteristic growth rate pattern in the pituitary dwarf is postnatal, often not presenting until after one or two years of age. In this they are almost the opposite of the primordial dwarf and similar to the late onset hypothyroid patient. They also have in common with thyroid deficiency delayed dentition and delayed bone age. They can be distinguished from hypothyroid patients by their euthyroid clinical state, normal U/L ratios in a symmetrical short stature, and by normal thyroid function tests. Hypoglycemia is not a likely part of this syndrome unless ACTH is also deficient.

The final pathognomonic in the pituitary dwarf is the demonstration of deficient plasma growth hormone following insulin induced hypoglycemia. Growth hormone is not deficient in the other categories of short stature, except thyroid deficiency, which is distinguished by abnormal thyroid function tests.[11]

Anomalies, mental retardation, seizures, neurological defects, and chromosome defects are all notably absent in the pituitary dwarf unless the condition is secondary to hypothalamic tumors (i.e. craniopharyngiomas and optic gliomas). In *Table 1* it can be seen that growth hormone deficiency secondary to tumors represents about one-third of all pituitary dwarfs diagnosed at KUMC. Diabetes insipidis and visual field defects are common in the secondary form but are never found in the idiopathic variety.

This condition is often difficult to distinguish in later childhood and early adolescence from constitutional delay but the distinction is possible and is necessary because of the difference in prognosis.

Constitutional Delay

This final category to discuss usually presents in middle or late childhood or in early adolescence. The growth curve looks much like growth hormone deficiency but is less severely retarded. The patient is symmetrically short, euthyroid, without anomalies or chromosome defects. He has dental and bone age delay but seldom is this more than two or three years retarded from the chronological age. Adolescence is delayed to a degree compatible with bone age retardation.

A striking feature of this condition is the high incidence in males *(see Table 1)* and the high incidence of delayed adolescence and growth in other male members of the family, notably the father. Statements revealing growth after graduation from high school or after induction into the armed forces are common and such questions should always be raised. Laboratory values are all normal in this condition and the prognosis is excellent without treatment. Adult height is expected to be normal but attained several years later than average. Delayed growth and development in early adolescent years may provoke serious emotional problems and this aspect must be weighed against all the physiologic factors in selecting the course of management.

Adolescence[1]

At this point it is necessary to comment on the very special phenomenon of adolescence, especially as it pertains to growth. Growth acceleration is dramatic in the normal adolescent and is usually greater in the 12 to 18 months prior to and coincident with early adolescence sexual changes. This growth spurt is the result of testosterone in the male and, to a lesser extent, estrogen in the female. The events of adolescence are determined by a bone age of 11 or 12 years in both males and females rather than the chronological age. This level of skeletal maturation is reflected clinically by the presence of 12-year molars (or the seventh tooth in each quadrant). In other words, when 12-year molars make their appearance then adolescence should be underway.

Comments

The above categories of short stature deserve special comment with respect to adolescence. For example, hypothyroid patients of all types can be expected to have delayed skeletal maturation including delayed adolescence. However, in an endemic goitrous region (i.e., sections of Missouri, Arkansas, and Kansas), many female patients with hypothyroidism present with precocious breast development and irregular menstrual bleeding. These precocious manifestations are paradoxically associated with retarded bone age and are totally reversible upon return of the patient to the euthyroid state.[12]

Ordinarily, inborn errors of metabolism, achondroplasia, and primordial dwarfs display normal adolescence with one exception. This exception is the precocious puberty described in the Silver (or Russell) variety of primordial dwarf.[4]

Ovarian dysgenesis, by its very definition, presumes deficient ovarian function and failure to develop breast, uterine, and labial maturation. All these tissues are estrogen dependent. In contrast, the ovarian dysgenesis patient has a normal bone age and often develops sexual hair at the appropriate age. It is hypothesized that these androgen vectors are developed by an intact ACTH-adrenal axis.

The pituitary dwarf is almost always deficient in gonadotropin, hence delay in adolescence is parallel to his delayed bone age. Finally, almost by definition, the constitutional delay patient suffers from delayed adolescence but is not deficient in hormones and eventually develops into a normal sexually mature adult. In contrast, the pituitary dwarf is expected to never reach mature sexual development without treatment.

Treatment

It can be appreciated from the above remarks that many of the patients with short stature have complex problems and are in urgent need of treatment to correct their deficiency in growth as well as their many other deficiencies.

First, as noted in *Table 2* there is virtually no treatment available for the correction of growth failure in the inborn errors, the achondroplastic, the primordial dwarf, and the ovarian dysgenesis patient. A possible exception might be made in the ovarian dysgenesis patient by the proper use of estrogen when the bone age reaches 11 or 12 years. In actual fact, many of these patients develop very well sexually under this treatment but show little increment in growth rate.

The late onset hypothyroid patient is very simple

to treat with full replacement thyroid. The dose should be the equivalent to 1 grain at one year and 3 to 3½ grains by age 10 or 11 when adolescence is anticipated.[13] Rapid catch-up growth is expected on initial adequate therapy and deceleration of growth would indicate the need for increasing the thyroid dose. It should be remembered that when monitoring the patient with PBI's only USP thyroid maintains this blood indicator in the normal 4 to 8 μg range. Synthroid will require euthyroid ranges from 8 to 11 while cytomel produces euthyroid states reflected by PBI's from 1 to 3 μg per cent.[14] Finally, it is useful to know that some patients started on thyroid treatment will lose all their hair. However, this is temporary and the normal hair growth will soon return.

Treating cretins requires more care than late onset hypothyroids because of frequent coincident anemia or heart failure. Very cautious early treatment with ⅛ or ¼ grain is indicated for about ten days until tissue edema has been cleared and adrenal function has increased sufficiently to meet the rapid metabolic increases. Failure to observe this caution can lead to death from cardiac arrhythmias, heart failure or addisonian shock, according to Blizzard.[14] However, others make no mention of this danger.[13] As soon as possible the dose should reach 1 grain. There is seldom an indication for maintaining a patient on less than 1 grain even in infancy. Digitalis may be indicated in some severe cases, but the anemia seldom needs specific treatment.

Constitutional Delay—Treatment

The treatment of constitutional delay is one of the most difficult problems in all the areas of short stature. The dilemma facing the physician is to decide when, and if any, treatment is really necessary. Untreated, the constitutional-delay patient should develop and grow normally into an adult, but he may be 17 or 18 years old before reaching this level. The question then becomes one of evaluating emotional stability and the effect of short stature on the patient's self concept. Some patients fail to compete and display severe emotional reactions to their immaturity and in selected cases the treatment of choice is long-acting testosterone, given in 200 mgm doses intramuscularly, monthly, for six months. Treatment should be withheld as long as possible to permit normal development, should always be brief and then discontinued, and should only be given with the understanding that it will trigger the patient's own natural hormones and is not a necessary replacement for a hormone deficiency. In this sense it could be considered a pump-priming. In many cases waiting until age 13 or 14 years is sufficient to prove to the patient that treatment is not necessary because their own development, though meagre, is objectively definite. The finite demonstrable signs of early development are sometimes treatment enough to relax the whole family. It is very important to follow the family closely through these adolescent years to insure that the choice of treatment or withholding treatment is valid. In the final analysis, each patient is very individual and the physician needs to be very secure in his diagnosis.

Hypopituitary Dwarf—Treatment

The growth hormone deficient dwarf can now be treated in certain select cases with purified human growth hormone. This powerful substance produces unquestionable stimulus to growth in patients who lack their own growth hormone and apparently has no effect on other categories of short stature. The source of hormone is very limited, being dependent entirely on extractions from human pituitaries removed at postmortem exams. Each pituitary yields sufficient hormone for only two or three doses. The optimum dose, schedule, and duration of treatment is not known at present, but the route must be intramuscular. The problem of diminishing effect is common and the correlation with rising growth hormone antibodies is still unresolved. All of these questions are being attacked by a collaborative study sponsored by the National Pituitary Agency. Most of the available hormone is controlled by this agency which has been responsible for greatly improving the biologic predictability of each lot and for processing the hormone for packaging in easy to dissolve multidose vials. The hormone can easily be given safely and comfortably at home by the parents.

Although still in a research category, the positive effect of human growth hormone on growth has been reported many times.[15, 16] The results of this type of investigation at KUMC are noted in *Table 3*. Our own dose has been 2 mgm intramuscularly, three times a week, in most cases. To date there have been no reported side effects or hypersensitivity reactions to the intramuscular route.

In contrast to testosterone, treatment with human growth hormone does not accelerate the bone age in excess of the chronological age. It is of use only in patients with true growth hormone deficiency in studies reported to date, and in such patients it can be expected to improve the ultimate adult height of the patient. Testosterone, on the other hand, never improves the ultimate adult height of the patient unless he is testosterone deficient. It serves only in the earlier attainment of that height. In promoting growth it greatly accelerates bone age beyond the chronological age, thus squandering long bone growth potential. Testosterone and other androgens are con-

TABLE 3

TREATMENT WITH HUMAN GROWTH HORMONE

Patient	*Age*	*Time Interval*	*Treatment*	*Height*	*Height Increase*
T.M.	14 y. 1 mo.	——	——	49	——
	15 y.	11½ mo.	Start HGH	50	1
	15 y. 11 mo.	5 mo.	D/C	52	2
	16 y. 1 mo.	1½ mo.	Start HGH	52	None
	16 y. 5 mo.	4 mo.	D/C	53	1
	16 y. 7½ mo.	2½ mo.	Start HGH	53	None
	16 y. 11½ mo.	4 mo.	D/C	53	None
	Growth rate off HGH—1/15½ = 0.8 inches/year				
	Growth rate on HGH—3/19 = 1.9 inches/year				
D.S.	2 y. 1 mo.	——	——	27.5	——
	2 y. 5 mo.	4 mo.	Start HGH	27.5	None
	3 y. 3 mo.	5½ mo.	D/C	30.5	3 inches
	3 y. 8 mo.	5 mo.	Start HGH	30.5	None
	4 y. 8 mo.	4½ mo.	D/C	33	2½ inches
	5 y. 1 mo.	4½ mo.	None	33¾	¾
	Growth rate off HGH—.75/13.5 = 0.7/year				
	Growth rate on HGH—5.5/21 = 3.1/year				
J.D.	12 y. 10 mo.	——	——	46½	——
	13 y. 6 mo.	8 mo.	None	46½	None
	13 y. 9 mo.	3 mo.	Start HGH	77	½ inch
	14 y. 1 mo.	4 mo.	D/C	48	1 inch
	14 y. 5 mo.	4 mo.	Restart HGH	48½	½ inch
	14 y. 10½ mo.	5½ mo.	D/C	50½	2 inches
	15 y. 7 mo.	9 mo.	None	50½	None
	Growth rate off HGH—1/22 = 0.54/year				
	Growth rate on HGH—3/9½ = 3.8/year				
G.M.	8 y.	——	——	39	——
	10 y. 4 mo.	28 mo.	Start HGH	42	3 inches
	11 y.	8 mo.	Continuing	44½	2½ inches
	Growth rate off HGH—3/28 = 1.3/year				
	Growth rate on HGH—2.5/8 = 3.7/year				

traindicated in any patient before the desirable time for sexual development.

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Arms and the Woman

A Treatment Method for Post-Mastectomy Lymphedema

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PERSISTENT SWELLING of the upper extremity following radical mastectomy is not a common occurrence. When it does occur, it is psychologically disturbing to the patient; it is usually a functional handicap which may develop into near total disability in use of the extremity, and it is frequently quite resistant to treatment methods. Indeed, one likely reason for the latter is the confusing array of etiological factors which at one time or another have been advanced as the cause for the development of the lymphedema: obesity, removal of the deep lymphatic channels and axillary lymph nodes, infection, angulation of the axillary vein, reflex spasm of the veins, post-irradiation fibrosis, thrombophlebitis with obstruction of the lymphatics in the vascular sheath, and recurrent malignancy with axillary metastasis.[1] Lymphatic blockage, for one reason or another, appears to be involved in nearly every case, according to Mustard and Murillo, and, if care is taken to preserve the lymphatic channels in the perivascular tissue immediately around the axillary vein at the time of operation, the incidence of lymphedema following radical mastectomy drops to nearly zero.[2]

With so much emphasis on clinical etiology factors, little attention has been paid to the dynamics of lymph flow in the lymphedematous extremity. As Wallace and colleagues[3] have pointed out, the fluid in the capillary, interstitial, lymphatic and venous spaces are all intimately related to and balanced with one another. Abnormalities in any one of these compartments are reflected in changes in the others in an attempt to maintain equilibrium. Not the least of these shifts in the fluid balance in the extremity is the demonstration of dilated and tortuous lymphatics associated with dermal backflow of lymph.[3] The increased protein content of the interstitial fluid with elevation of osmotic pressure adds to the problem of its removal.

Whatever the cause for the lymphedema, its occurrence is cosmetically distressing and it results in a greater or lesser degree of impairment of function of the extremity. The standard treatment for the condition frequently seems to begin and end with the advice to secure an elastic sleeve and learn to live with the problem. Well intended or not, there is more to treatment than the advice just noted, and, if physician and patient alike are willing to follow a rather rigid schedule for a reasonable period of time, improvement in the condition is the rule rather than the exception.

The purpose of this article is to outline what we have found to be a useful program in the management of this distressing aftermath of surgery. It is not concerned with survival rate, the etiology of the lymphedema, or the influence of the program on the clinical course of the malignancy. It is patterned after but not identical with the method described by Stillwell.[4]

In a small series of patients with persistent lymphedema following radical mastectomy, moderate to marked reduction in the limb size was achieved with a program designed to empty the superficial interstitial fluid reservoir of fluid and to prevent its reoccurrence. This program has met with patient acceptance and satisfaction with the results achieved, although in no instance were the factors leading to edema formation permanently corrected.

Material

Eleven middle-aged women were treated with the method to be outlined. Lymphedema of the homolateral upper extremity following radical mastectomy had been present for one to seven years. Previous treatment had included the use of elastic sleeves or elastic bandages, but not in any formal programmed sense. Several of this group had carried out no treatment efforts, as they had been told that nothing could be done for the condition.

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Basic Principles of Treatment

1. The recognition that there is no single treatment measure. Effective treatment encompasses several procular, extracellular) fluid reservoir must be drained

2. Initially, the superficial interstitial (extravascular, extracellular) fluid reservoir must be drained as completely as possible.

3. Finally, this reservoir must be kept emptied until tissue tone is restored and atrophy of the stretched connective tissue has occurred.

4. The patient must understand the importance of and pledge her cooperation in achieving each step in the long term treatment effort if lasting results are to be achieved.

Specific Treatment Procedures

1. *Initial phase of edema reduction:*
   a. The patient is hospitalized for the first five days, as we feel that fluid removal initially is best accomplished by the intensive employment of mechanical means.
   b. Measurements are taken prior to institution of treatment. Circumferential measurements at identical landmarks bilaterally are secured. Alternatively, the displacement volume of the extremities by immersion in a suitable container may be obtained. The advantages of the circumferential measurements: simplicity, applicability to ward routine, and as an indicator of the pattern of fluid removal from the extremity. Advantage of fluid displacement measurement: the difference between the two extremities may be assumed to represent accurately the excess fluid in the edematous extremity as a whole. Neither method, of course, measures lymphedema *per se.*
   c. The mechanical device we have employed is the Circulator,[5] although none of the several types of mechanical pumping devices currently available commercially has been shown to be superior to the others.[6] The Circulator consists of a six-chambered sleeve inflated in series from the distal to the proximal portion of the extremity in rhythmically repeated sequence. The rhythmical pumping action is maintained for one and one-half hours out of two-hour periods. This schedule is maintained around the clock unless the patient cannot obtain rest despite the aid of sedation. The arm is carefully positioned with the hand on a higher plane than the elbow which in turn is slightly elevated over the shoulder height; the extremity is thus on an inclined plane.
   d. One of the chlorothiazides is usually administered to aid in the total fluid removal.
   e. The patient is taught self-bandaging of the extremity. Two three-inch elastic bandages sewed end to end are employed, starting at the hand, and spiraling proximally to the mid-biceps or above. Sufficient tension is applied evenly so that the bandage feels snug but not tight. The bandage is applied whenever the patient is up during the "off" time from the Circulator.
   f. During the up time, range of motion of the bandaged extremity is carried out together with isometric gripping exercises of the hand.
   g. At the end of the five-day period, the measurements are repeated and the patient is measured for a Jobst elastic sleeve.[7] The sleeve is lighter and more comfortable to wear than the bandage, and does not have the tendency to creep and constrict as with the bandage.
2. *Later phase of management.* The chief objective at this point is the prevention of reaccumulation of the edema fluid. As important an objective is to hold the connective tissue comprising the interstitial fluid compartment at this constricted level until permanent shortening of the stretched connective tissue fibers can occur. On these two points hinge the entire success of the edema reduction program. To permit the fluid compartment to refill, even once, restretches the connective tissue. Each such occurrence represents an effective barrier to stabilization of the process.
   a. Until the Jobst sleeve has been secured, we have tried to have the patient follow this schedule:
      (1) The extremity is massaged at bedtime, using centripetal strokes and beginning at the proximal portion and working back toward the hand. The patient cannot effectively perform this herself; another person is taught to do this.
      (2) The bandage is reapplied and the extremity is positioned on pillows or an elevated incline for the night.
      (3) Before arising, the bandage is removed and reapplied. This is necessary because of the shifting of the bandage strips which normally occurs during the night.
      (4) The bandage may be removed for personal hygiene care following which it is reapplied.
      (5) Repeatedly during the day a few isometric gripping movements are made with the hand while the extremity is bandaged.
      (6) Since the superficial interstitial fluid compartment "decompensates" readily, the patient is urged to lie down for a 30-minute period at least once during the day with the extremity inclined on pillows or a

board. The bandage is removed and reapplied prior to arising.

b. The bandaging is dispensed with when the Jobst sleeve arrives. Initially, the sleeve is worn throughout the day and night, removing it only for bathing. If the swelling increases toward evening, the elastic bandage is substituted for the sleeve during the night. If the swelling remains stabilized during the day, the sleeve may be removed at night. If the swelling still remains stabilized, the sleeve may be removed for longer periods. The patient must realize that the sole purpose of the sleeve is to maintain a certain artificial tissue tension, the function of which is to oppose the accumulation of tissue fluid; in no sense does it "squeeze" fluid from the tissue spaces, nor does it restore the normal dynamics of lymph flow.

c. As the sleeve appears to stretch, the extremity should be remeasured and a new sleeve secured. Whether the sleeve actually stretches or whether the extremity shrinks further, a sleeve tailored to the current measurements is mandatory.

d. All patients are cautioned to avoid working circumstances which favor the production of edema: hot environments, lifting or stooping, or repetitive muscular movements of that extremity. Similarily, all patients are warned to seek medical aid for any wound or infection in that extremity, regardless of how trivial it might appear to be initially.

Results

Ten of the eleven patients improved dramatically during the initial five-day period of intensive treatment. Approximately one-third to one-half of the estimated edema fluid accumulation was removed during this period of time. Further reduction was achieved slowly with stabilization of limb size within three months. No patient obtained complete resolution of the lymphedema. No patient was able to dispense with the sleeve entirely. Three of the group found that they could not follow the program in sufficient detail as to prevent periodic reaccumulation of the edema fluid. Nevertheless, all expressed gratification with such reduction as was achieved. One patient exhibited progressive lymphedema due to massive metastatic involvement of the axilla.

Representative improvement is shown in the following table:

Circumferential Measurements	*Before Treatment*		*After 5 Days*		*After 1 Month*		*After 3 Months*		*After 6 Months*	
	L	R	L	R	L	R	L	R	L	R
10 cm. above elbow	28	37.5	28	34.5	28	34	28	32.5	28	32.5
Elbow	27.5	33	27.5	30.5	27	30.5	27	29.5	27.5	29
10 cm. below elbow	26.5	32	26.5	32	26	29	26	27	26	27
Wrist	17	20	17	18	17	17.5	17	17.5	17	17

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Viral Diseases

Laboratory Diagnosis of Human Viral Diseases
Recent Developments and Future Trends

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Introduction

VIROLOGY HAS MADE phenomenal progress within the last two decades. Prior to 1947, only about 40 viruses were known to cause infections in man and animals. Today at least 400 different animal viruses are known and more than half of them can cause some 50 different syndromes in man. The first breakthrough in the rapid progress of virology was due to the use of suckling mice which resulted in the isolation of a new group of viruses, now classified as coxsackieviruses, from human fecal specimens.[1] Shortly thereafter, the introduction of *in vitro* cell cultures provided the ground for not only the isolation of a great number of new viruses but also for the biochemical and biophysical studies of these agents.[2]

Presently viral diseases are the most prevalent infections of man. The infections caused by viruses range from inapparent (subclinical) ones (e.g., infections with certain types of echovirus), to an invariably fatal infection (e.g. rabies). A distinguishing characteristic of viruses is that one viral agent may produce a variety of clinical syndromes. An echovirus may produce paralysis in one individual but aseptic meningitis, diarrhea, upper respiratory disease or no clinical symptoms in others. It is this characteristic that makes the definitive diagnosis of most viral diseases on clinical grounds impossible. Hence, the clinician must depend on laboratory findings for an accurate diagnosis of a patient's suspected virus disease. Furthermore, laboratory findings provide the essential information needed by the epidemiologist who is interested in the occurrence and spread of viral diseases. Likewise, physicians involved in preventive medicine depend on the information provided by the diagnostic virus laboratory for the use of the proper vaccine and the initiation of a preventive vaccination program.

Prior to the introduction of cell culture techniques, isolation of viruses was prohibitively expensive and cumbersome. Experimental animals and embryonated eggs were mainly utilized for isolation purposes, but only a limited number of viruses could be isolated. The use of cell cultures has resulted in the isolation of a great number of hitherto unknown viruses and has greatly facilitated the isolation of viruses that previously required expensive procedures. Presently, for the isolation of polioviruses, one monkey kidney cell culture tube (which cost about 50 cents) can serve as one monkey (average cost more than $50), formerly needed for this purpose. Continuous improvements in the methodology, preparation and use of cell cultures, serologic procedures (microtiter system instead of regular tube system)[3] and viral diagnostic reagents have placed the diagnostic virus laboratory within the scope of activities of many larger clinical laboratories. It is, therefore, justifiable for a clinician practicing in a metropolitan area to expect the facilities of a local virus laboratory when he chooses to seek laboratory assistance in the diagnosis of suspected viral diseases.

Improvements in the efficiency, speed and practicability of laboratory procedures for the diagnosis of virus diseases have been introduced during the last two decades. It is now possible for a hospital with well-equipped clinical laboratories to initiate a virus diagnostic service. However, since virus diagnostic procedures are still more expensive and time-consuming than other microbiological procedures, it is suggested that hospitals in metropolitan areas pool their resources and establish a centrally located virus diagnostic laboratory to serve all clinicians and public health officers of the area.

Current Procedures of Laboratory Diagnosis

Three main lines of approach are currently used for laboratory diagnosis of human viral diseases. They are as follows:

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(1) Direct examination of infected tissues (or cells and tissue fluids obtained by scraping or smearing such tissues) for pathological alterations or presence of viral materials (inclusion bodies). Light microscopy reveals a variety of inclusion bodies which are characteristic of the causative agents and thus a definite (in rabies) or at least a tentative (in herpes simplex lesions) diagnosis can be made. For those viruses which do not form inclusions visible by the light microscope, electron microscopy can detect the presence of a virus, determine its size and shape and place it in a certain group of viruses. This is analogous to determining, by the light microscope, whether a wound infection is caused by a micrococcus or a bacillus. A differentiation between infections caused by adenoviruses (about 80 millimicrons in size) and enteroviruses (17-28 millimicrons in size) may be achieved by proper electron microscopy.

The direct microscopic examination is both the fastest and simplest procedure in diagnostic virology. However, most viral diseases (e.g., influenza), do not produce inclusion bodies and observation of the viral particles by the electron microscope is of limited diagnostic value since a definite identification of the causative agent can be achieved only by one of the following two procedures.

(2) Performance of serologic tests in order to demonstrate a significant (at least four-fold) rise in the level of specific antibody to the suspected causative agent during the course of the illness. For this purpose, the serum obtained at the onset of the illness (acute stage) and the serum obtained two to three weeks later (convalescent stage) are tested simultaneously in order to show the rise in titer of the specific antibody. It is, therefore, obvious that meaningful serologic results could not be obtained unless and until the convalescent sera become available. This requirement renders most serologic tests retrospective, i.e., laboratory diagnosis is made after the patient has recovered or expired. However, data obtained by such serologic tests are of great diagnostic help to clinicians in regard to future similar cases especially during epidemics with which viral agents are frequently associated. Furthermore, in certain viral infections, e.g., arbovirus encephalitides (St. Louis encephalitis) the production of hemagglutination-inhibiting antibody is so rapid that a significant rise can be detected in the patient's serum within one week after the onset. Hence, serologic diagnosis of a case of St. Louis encephalitis could be achieved while the patient is still in the acute stage. The serologic tests are also useful in determining the level of antibody and, hence, immunity of women accidentally exposed to rubella during the first trimester of pregnancy. Demonstration of a significant level of specific antibody to lymphogranuloma venereum agent in a patient manifesting compatible clinical features is also of definite diagnostic value.

The main serologic tests generally used in diagnostic virology are: (a) complement fixation (CF) test, and (b) hemagglutination inhibition (HI) test. HI antibodies usually appear earlier than CF antibodies but do not last as long as the latter. Furthermore, HI antibodies are more specific (are against one type rather than a group of viruses) and correlate more or less with the neutralizing antibodies which are considered as the main humoral factors in immunity. Reliable CF and HI antigens for a variety of viral diseases are already available commercially and undoubtedly more will become available in the future. Both CF and HI tests are simple (especially by the microtiter system) and could be performed by trained personnel of a well-equipped microbiologic clinical laboratory.

A new development of the serologic procedure is the fluorescent antibody (FA) technique. This involves tagging known specific antisera with a fluorescent dye (fluorescein isothiocyanate) and adding such tagged antisera to unknown antigens. When a pair of homologous antigen and antibody (tagged) are brought together, they attach to one another so firmly that they could not be separated by gentle washing with saline. Heterologous pairs do not react with each other and are readily separated by washing. When a combination of homologous antigen and antibody are viewed under an ultraviolet microscope, the tagged antibody will fluoresce and thus identifies the attached antigen as its homologous counterpart. Obviously a combination of heterologous antigen and antibody will not fluoresce because the tagged antibody is washed away by saline in the preparation process. The FA technique has been very successfully applied to the diagnosis of rabies. Useful diagnostic FA tests are now being developed for influenza and a number of other viral diseases.[4]

(3) Isolation and identification of the causative virus. Formerly experimental animals (monkeys, rabbits, mice, guinea pigs) and embryonated eggs were used exclusively for the isolation of viruses. The advent of the cell culture technique brought about dramatic changes. Presently suckling mice are needed for the primary isolation of most group A coxsackieviruses and young adult mice are still the best system for the isolation of arthropod-borne viruses. The yolk sac of the chick embryo is very useful for the isolation of rickettsias and members of the psittacosis-lymphogranuloma venereum-trachoma-inclusion conjunctivitis group. Primary isolation of influenza virus and of herpes simplex and variola-vaccinia viruses in the amniotic sac and on the chorioallantoic membrane of the chick embryo respectively, is easily

achieved. However, influenza as well as herpes simplex and variola-vaccinia viruses are also readily isolated in cell cultures. Presently, various cell cultures are used almost exclusively in most virus diagnostic laboratories. Mice and embryonated eggs are resorted to in special cases.

Since not all viruses grow in one kind of cell culture, a variety of cell cultures must be used if different groups of viruses are to be isolated. Essentially cell cultures are of three kinds: (1) Primary cell cultures such as monkey kidney and human amnion cell cultures which are prepared directly from kidneys of monkeys and human amniotic membrane. (2) Cell strains exemplified by WI-38 and A cell cultures. The former were derived from normal embryonic human lung[5] and the latter from normal human aorta.[6] These cell cultures can be subpassaged in the laboratory to a certain limited number of subpassages (normally 30-50). (3) Cell lines which have originated from various tumors. The first well-known of these, namely HeLa cell line, was derived some 15 years ago from a human carcinoma of the cervix. Other useful cell lines are KB and Hep-2, both of which also originated from human tumors. The cell lines are heteroploid and can be subpassaged in the laboratory indefinitely. Another category of cell lines are those that were originally derived from normal (diploid) tissues but, due to subsequent laboratory manipulation, have become heteroploid in make-up. AV-3 (human amnion), BS-C-1 (green African monkey kidney) and BHK-21 (baby hamster kidney) are of this category. On the whole, primary cell cultures are more susceptible to viruses than cell stains or cell lines.

Isolation of viruses from clinical specimens in cell cultures consists of first eliminating contaminating bacteria from the specimens (by treatment with antibiotics and high-speed centrifugation) and then inoculating 2-3 tubes of susceptible cell cultures with about 0.2 of the prepared specimens. If a specimen contains virus and the cell cultures are susceptible, the virus will propagate in the cells manifesting its growth by one or another of the following effects. The virus may cause distinct destruction of the cells which is referred to as cytopathic effects (CPE). Most viruses (e.g., polio-, adeno-, and herpes simplex viruses) produce rather characteristic CPE in susceptible cell cultures. Other viruses exemplified by measles and respiratory syncytial viruses cause giant cell (syncytium) formation. Still others (parainfluenza viruses) cause little or no CPE, but cells infected with them adsorb red blood cells (hemadsorption phenomenon). Rubella virus grows in primary green African monkey kidney cells but no CPE, syncytium or hemadsorption are detected. However the infected cells are resistant to superinfection with a CPE-producing virus (interference phenomenon).

Once a virus is isolated, it is identified by the serum neutralization test (in cell cultures) or when feasible by hemagglutination inhibition test (influenza) or complement fixation test (adenovirus) all performed with known antisera.

Logistics of a Properly Functioning Diagnostic Virus Laboratory

Although the causative agents of nearly all known human viral diseases have been isolated and characterized in the laboratory, virus diagnostic laboratories are currently functioning in a limited number of hospitals and medical centers that have a full range of clinical laboratories. The reason for this lag is manifold. The main logistical problems in the establishment of laboratory service for the diagnosis of virus diseases that constitute more than 60 per cent of all acute infections of our population are discussed below.

(1) The establishing, staffing and equipping of a diagnostic virus laboratory is thought to be prohibitively expensive. This was quite true before the recent improvements and refinements of virus diagnostic procedures. Presently no special expensive equipment that is not normally found in well-equipped, present-day clinical laboratories is needed for virus work. A well-trained clinical microbiologist is capable, after a few months of special training, of running a good diagnostic virus laboratory. Viral diagnostic reagents; e.g., typing sera and serologic antigens, are still rather expensive. However, due to the introduction of the microtechniques, such small quantities of these reagents are needed in the new techniques that the costs of virus diagnostic tests are now comparable to those of other microbiological tests. The cost of cell cultures is considerably reduced by purchasing the initial cultures of these cells and then maintaining them in one's own laboratory. Primary cultures of human amnion and human embryonic kidney (which in most cases can substitute for monkey kidney) can be prepared in one's own laboratory by proper arrangement with the delivery rooms of local hospitals. Other needed reagents, such as media and red blood cells, are obtainable from commercial sources at moderate prices.

A further reduction in the cost of diagnostic virology can be brought about by pooling the various resources and establishing only one central diagnostic laboratory for a metropolitan area. Hence, duplication of personnel and equipment is eliminated and since larger numbers of specimens will be handled by one laboratory, the cost per test may be considerably reduced.

(2) Some clinicians feel that the results of virus tests on patients apparently suffering from nonbacterial diseases are frequently negative and that the

positive results are generally reported after the patient has recovered or expired. Furthermore it is believed that since antiviral drugs are not currently available, the specific diagnosis of a viral disease is of no value to the patient so far as his treatment is concerned.

In discussing the above problems, it should be emphasized that the results of any laboratory tests are as good as the specimens. Viruses are obligatory intracellular parasites and are, by and large, extremely labile outside of their hosts. Furthermore, as pathogens, viruses behave as transient agents (no true carrier of a virus disease is known) which frequently disappear from their target organs after their initial effects. It is now well established that the influenza virus is very infrequently isolated from typical cases of influenza when the fever has subsided and that the virus of lymphocytic choriomeningitis is rapidly inactivated outside of the human host. For obtaining more positive results, it is, therefore, mandatory that the clinical specimens be collected at the proper time (at onset or shortly after) and from the proper organs or sites. After collection, the specimens should be kept cold and delivered to the virus laboratory immediately or kept frozen (at least –20° C and preferably at –70°C) until delivered. By proper collection and handling of clinical specimens, more positive results can, undoubtedly, be expected.

In regard to the delay in reporting the laboratory results, it should be realized that the present virus diagnostic procedures were initiated less than 20 years ago. However, the speed and efficiency of these procedures are being improved continuously. Viruses constituting the lowest known level of parasitism grow inherently slower than bacteria and thus, with the presently available tools, a longer time is needed to isolate and identify them. When the specimen is properly collected and handled, the viral agent, if present, is usually isolated within a few days. It is the typing of the isolated agent that requires the additional time (one week or more). However, a trained virologist can form an educated guess as to the nature of the virus when first isolated in certain cell cultures. By communicating this educated guess, the attending physician is greatly assisted. It is of secondary importance for the clinician to know that the cause of his patient's CNS symptoms was coxsackievirus group A type 9 rather than echovirus type 4 if he is informed that an enterovirus and not any other microbial agent was isolated from the spinal fluid. Results of typing the isolated virus can be reported to the clinician at a later date.

In regard to the unavailability of therapeutic agents for virus diseases, the situation is not as pessimistic as once thought. A locally effective drug (IDU for herpetic lesions of the eye) and an effective preventive drug (Marboran or IBT for smallpox) are already in use. More antiviral agents are now being discovered. The rapidly expanding knowledge of the intracellular replication of viruses at the molecular levels, will undoubtedly produce effective antiviral drugs in the foreseeable future.[7]

(3) Another question occasionally raised pertains to whether or not the diagnostic virus service should be left to state health laboratories or federal public health agencies. This concept is useful and at times necessary when a local diagnostic laboratory is encountered with virus isolates that are not identified with the usual viral reagents or when the community is confronted with an unusual illness suspected of having a viral etiology. State and federal laboratories are better equipped and can offer great assistance to local physicians and public health officers during emergencies. However, for routine diagnostic virus work, a local laboratory can offer faster and more efficient service to the local clinicians. The concept of a local laboratory, in addition to state and federal laboratories, receives further support when it is realized that many of the newly discovered human pathogenic viruses were first isolated in laboratories established at larger medical centers for diagnostic purposes. Moreover, a local diagnostic virus laboratory is the essential foundation for further research on human viral diseases. It is also needed for the practical training of clinical pathologists and medical technologists.

Summary and Conclusions

Extensive improvements in the efficiency, speed and practicability of laboratory procedures for the diagnosis of virus diseases have been introduced during the last two decades. It is now feasible, by moderate expenditure, for a hospital with well-equipped clinical laboratories to initiate a virus diagnostic service. By proper collection and handling of clinical specimens, the causative viruses of a large percentage of human viral diseases can be isolated within a few days. Furthermore, at the time of isolation, a trained virologist can form an educated guess as to the nature of the isolated virus and thus can inform the clinician of a tentative result. Confirmation (or correction when the tentative results prove erroneous) can be reported at a later date. Since it is of secondary importance for a clinician to know, for example, that his patient's neurologic syndrome is due to one type of enterovirus rather than another type, this direct communication between the clinician and the virologist, and the rapid presentation of tentative results would prove of great value in the management and treatment of patients.

Virus diagnostic procedures are still more expensive and time-consuming than other microbiological

procedures. For the sake of economy, it is suggested that various hospitals in a metropolitan area pool their resources and establish a centrally located virus diagnostic laboratory that can serve all clinicians and public health officers of the area.

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Alarms and Excursions

(Continued from page 99)

teams need medical assistance, such requests from the fire dispatcher to the medical dispatcher should provide such assistance. Essentially, any request for assistance, from whatever the source could be processed through these three dispatchers (medical, fire, police).

Summary

Although a medical communications and dispatching system should be designed specifically to meet the needs of the community it is to serve, the general purposes of such systems remain the same. These purposes are: (1) provide a medically controlled system of immediate and continuous care for the critical patient from the time of onset until admission to a hospital; (2) provide a single source of emergency medical assistance for the community; and (3) provide coordinated efforts between ambulance services, hospitals, physicians, and other emergency services, whether the emergency is a man with a heart attack or a disaster involving many casualties.

The advantages of such organization are: (1) decisions as to patient care, transportation, and choice of hospital are made by physicians, based on the patient's immediate needs, without undue strain on the medical manpower of the community; (2) time-lag between onset and treatment can be reduced; (3) the disproportionate use of emergency vehicles and hospital emergency departments can be avoided; and (4) the proposed system, while designed to deal with everyday emergencies, can be rapidly expanded to deal with disasters.

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Suicide

(Continued from page 113)

completed suicides and of poisoning and cutting in attempted or incompleted suicides—all these data are in concordance with the national trend. While a high suicidal rate is observed among the unskilled and semiskilled laborers, the same is not seen among the high socioeconomic status group, as reported elsewhere. A suicide-prone profile is most discernible in the Caucasian male, in whom ageing, divorce, change in vocational status and social prestige constitute the predisposing psychosocial factors. As noted in other surveys, the recently rising suicidal incidence among the young people (teen years to thirty) has made self-destruction one of the top three causes of death in this age group and this deserves concern. The seasonal variation of suicides in this locality is not noteworthy. The epidemiological study of suicide, with its pitfalls, and the other methodological approaches to this complex phenomenon are briefly reviewed. It is hoped that this pilot study will stimulate further research into suicide in this area.

This article is based on the original senior thesis by Robert E. G. Bidwell (1965). The authors are indebted to the Coroner's Department of Jackson County, Missouri; the Board of Police Commissioners of Kansas City, Missouri; and, the Police Department of Kansas City, Missouri, for their kind cooperation. The opinions expressed herein, however, are strictly our own.

A list of references will be furnished on request.

The election isn't very far off when a candidate can recognize you across the street.—*Kin Hubbard*

A saint is a skeptic once in 24 hours.
—*Ralph Waldo Emerson*

Lymphangioadenography

—*of the Pelvis and Retroperitoneal Space*

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LYMPHANGIOADENOGRAPHY FOR EVALUATION of the lymphatic vessels and lymph nodes is relatively new as a diagnostic tool in radiology. Our experience with over a hundred cases at the University of Kansas Medical Center has been rewarding.

This should be an important special procedure in every hospital concerned with evaluation of patients with malignant diseases, mainly lymphoma. It has proven to be very helpful in diagnosing the illness and in planning treatment.[1, 2] This technique is also of value in determining the etiology of distal edema. In the past the application of this procedure has not been popular because of the difficulties of interpretations, which depend a great deal on experience; and the fallacy that it is a time-consuming procedure for the radiologist.

A negative study is as useful as a positive one in staging lymphoma. Often it offers a nonsurgical approach to the diagnosis of the lymphatic structure of the retroperitoneal space when tissue diagnosis has been made in another involved area.

Because of the increased use of lymphangioadenography, perfection and experience have been gained, and its limitations have been reduced. In radiotherapy it may define the radiation portals and evaluate the regression of disease. The surgeon has found it helpful in performing lymphadenectomies.[3] If Ethidol and chlorophyl are mixed, nodes and lymph vessels are stained green, making them more easy to identify for removal. Films may also be taken in surgery for the remaining nodes.

In our institution we have used this method mainly in evaluating the extent of the lymphomas for staging purposes. We have also used lymphangioadenography, although less frequently, in peripheral edema, metastatic disease and in one case of chylothorax.

Contrary to the general impression, the cannulation for injection of the contrast medium is not difficult to perform. It requires some patience and skill which can be acquired easily by the radiologist. The average time necessary for its completion is usually no more than three hours. However, as a rule, the radiologist does not have to spend more than 30 minutes in the cannulation, after which a technician familiar with the procedure observes the patient and takes the pertinent films *(Figure 1)*.

Untoward effects are encountered very infrequently and they are not serious enough to contraindicate the procedure. It seems that the two main contraindications are chronic lung disease and history of allergy to iodine compounds. In our series of studies two patients have had complications. In one, fever which lasted approximately 24 hours, was the feature; the use of aspirin was enough to relieve the symptom. The second also developed fever and shortness of breath several hours after the end of the procedure. These symptoms were relieved with antihistamines. The literature reports a low incidence of side effects, fever being the main feature.[4] Pulmonary oil embolization occurs in almost every case, but most of the time is of no clinical significance.[5]

The patients are never hospitalized for this procedure. No premedication is required with the ex-

Our experience in over a hundred cases with lymphangioadenography of the retroperitoneal space, used chiefly for staging purposes has proved its value. It has its main applicability in lymphomas to detect involvement below the diaphragm which very often is clinically unsuspected. A negative study however is as useful as a positive one.

Contrary to the general opinion, this is not a difficult procedure to perform nor is it time-consuming for the radiologist. The technical principles which are basically similar to those dictated originally by Kinmonth have been described. The side effects elicited in less than one per cent were minimal and not enough to contraindicate the procedure. More experience will be gained after larger numbers of patients have been studied with pathological and clinical correlation for more accurate interpretation of the different lymphangioadenographic patterns in the earlier stages of involvement.

* From the Department of Radiology, University of Kansas Medical Center.



Figure 1. Lymphatic vessels visualized in the legs.

ception of children and apprehensive patients where a mild sedative is indicated. There are no limitations on food and fluid intake.

The following technical principles for lymphangioadenography correspond essentially to those pioneered by Kinmonth in 1955.[6] Since this procedure is tedious, preliminary explanation to the patient to enlist his full understanding and cooperation will contribute to the success of the examination. The position of the patient is supine on the x-ray table. The patient should be as comfortable as possible and a rubber pad should be used. Usually the adult patient needs no fixation on the table, but for the uncooperative and pediatric cases immobilization of the extremities is often necessary.

The identification of the lymphatic vessels for the injection of radiopaque material necessitates their preliminary staining. This is accomplished by the subcutaneous injection of dye which is taken up by the lymphatic vessels.

The usual site of the injection is the dorsum of the foot for the opacification of the lymphatic system in the femoral, pelvic and retroperitoneal areas. The area is shaved, if necessary, and the entire foot is cleansed with merthiolate and alcohol and covered with sterile drapes. The staining of the lymphatics is performed with one of the following substances: aqueous solution of Evans Blue, Patent Blue (11%), or Sky Blue. The dye must be injected strictly in the subcutaneous tissues and the amount varies between 0.3 and 0.5 cc diluted in an equal amount of local anesthetic (Xylocaine, 1%). This solution is injected into the first interdigital space of the foot. About five minutes after injection of the colored substance, the lymphatic vessels become apparent in the form of blue streaks. These streaks may not always be easily recognized especially in patients with thick or dark skin. In this case the incision is carried out blindly in searching for the lymphatic vessel.

Under local anesthesia an incision of approximately one to one and a half centimeter is made over the first and second metatarsal bones crossing the vessel transversely *(Figure 2a)*. With this type of incision, usually several vessels are available. With blunt dissection the lymph vessel which appears as a structure of dark blue color is carefully freed from all surrounding tissues with the use of fine instruments. One must emphasize patience and caution to avoid rupture of the vessel during the dissection.

The reasons for selecting this injection site are: (1) a cut down here is relatively bloodless, and (2) injecting contrast medium at a distance from the pelvis results in a more complete filling of the lymphatic groups because of the numerous collateral channels.

The adequately isolated lymph vessel *(Figure 2b)* is surrounded by three threads of 4-0 silk, one at each end of the exposed vessel. These threads should be long enough for an assistant to hold the proximal one comfortably without having his hands obstructing the field of dissection. A third one is placed in the middle of the vessel ready to be tied for fixation of the needle. Gentle traction is made proximally on the vessel by the assistant. The previous area injected with the Patent Blue is then massaged towards the incision, thus ballooning the vessel, after which the distal thread is tightened by light traction. This simple maneuver greatly eases the cannulation for the vessel which is done by a 30 gauge needle attached to an 18″ polyethylene tube to be connected to the injector. We use a commercial 30 gauge disposable lymphaniography set.†

Once the needle has been introduced into the lumen of the vessel the proximal traction is released and ligature is then tied around the vessel and the needle tip in order to secure it and to prevent extravasation of the contrast medium. Additional immobilization is obtained by using a piece of surgical tape.

† 30 Gauge No. 42-0007 BD Sterile Disposable Lymphangiographic Set 18″.



Figure 2A. Exposed lymphatic vessel ready for cannulation. By gentle traction of the proximal thread (arrow) and simultaneous massage at the site of injection of the staining material toward the incision, the vessel becomes distended.

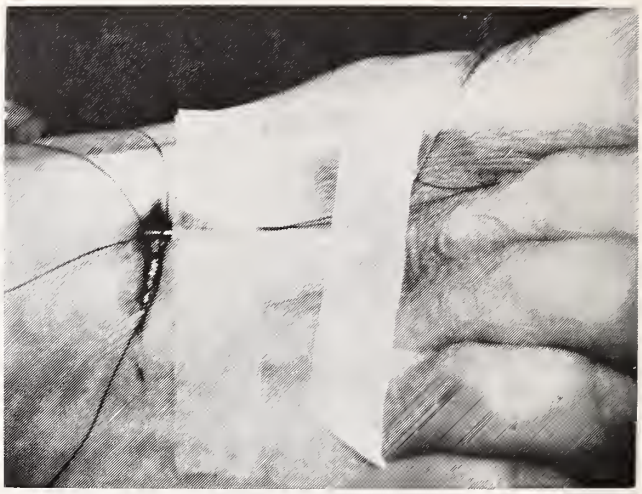


Figure 2B. Cannulation of the vessel. Relaxation of the threads and fixation of the tip of the needle with the thread around the needle. Additional immobilization is obtained with surgical tape.

We use Micropore tape because of its adhering quality *(Figure 2b)*.

Just prior to the cannulation the polyethylene tube is filled with a saline solution to prevent air entering the lymphatic vessel. Once the needle is in place and fixed, the tube is connected to the syringe or injector containing the contrast medium. We place the syringe in a motorized infusion pump‡ *(Figure 3)*, however more simple devices can be used.

The contrast medium most often used is an ethyl ester iodized poppy seed oil containing 37 per cent iodine (Ethiodol) because of its good radiopacity, low viscosity, low toxicity, and excellent retention in the nodes. A total amount for the average adult patient would range from 8 to 10 cc injected in each extremity. The dose for the pediatric case is proportional to the size of the patient.

The Ethiodol is introduced continuously at the rate of approximately 0.1 cc per minute. When the infusion has been started the intralymphatic injection can be verified, seeing that the blue dye has been

‡ Infusion Pump, Model 600-910, Harvard Apparatus Company, Inc. Dover, Massachusetts.



Figure 3. Contrast medium being injected.



Figure 4. Anteroposterior radiograph of a 19-year-old male, made at the completion of the injection of Ethiodol showing normal lymphatic vessels and early filling of the lymph nodes.

flushed from the vessel and noting a distention of the lumen. If excessive distention or leakage is noted, the rate of the injection should be decreased.

Occasionally during the injection the patient may complain of burning or pain at certain levels. This corresponds to the distention of the vessel due to excessive pressure which may lead to rupture of the vessel and extravasation of the contrast medium, and calls for reduction of the injection speed. Control films are exposed during the injection at different levels.

At the completion of the injection the needle is removed together with the ligatures and the incision is flushed with normal saline to remove the remaining contrast medium which might delay normal healing. It is then closed with 4-0 silk sutures and a pressure dressing applied. The exposed lymphatic vessel usually does not require ligation except in those instances when the vessel is abnormally large. The sutures are usually removed in no less than ten days.

At the end of the procedure, anteroposterior radiographs of the pelvis and abdomen are obtained *(Figure 4)*. These films afford the best visualization of the lymphatic vessels. If indicated, additional films can be taken while the patient is still in a supine position, using dorsal-spine technique in anteroposterior and cross-table lateral projections of the chest for demonstration of the thoracic duct *(Figure 5)*. Follow-up roentgenograms of the pelvis and abdomen in anteroposterior, lateral and sometimes oblique views are made at 24 hours and occasionally at 48 hours. These late films will show complete filling of the lymph nodes without overlapping of the vessels *(Figures 6 and 7)*. Stereoscopic views and occasionally laminographic study of the opacified lymph nodes may yield additional information. The chest film, obtained routinely at this time, might show contrast medium embolization throughout both lung fields, which usually is of no clinical significance. Also visualization of a node or group of nodes in the left supraclavicular area and occasionally in the mediastinum is seen.

Lymphangioadenography has its greatest value in the evaluation of lymphoma *(Figures 8-11)*. The pathologic changes producing distortion of nodal architecture produce characteristic radiographic patterns. Due to central and homogenous involvement, the nodes appear to be enlarged producing the so-called "lacy pattern" or increased reticular appearance, the periphery is usually well preserved. There are usually more nodes involved in lymphoma than in carcinoma. Obstruction of the lymphatic vessels occurs late when the lymph node is almost completely replaced by the tumor. Some authors believe it is possible to identify the different types of lymphoma

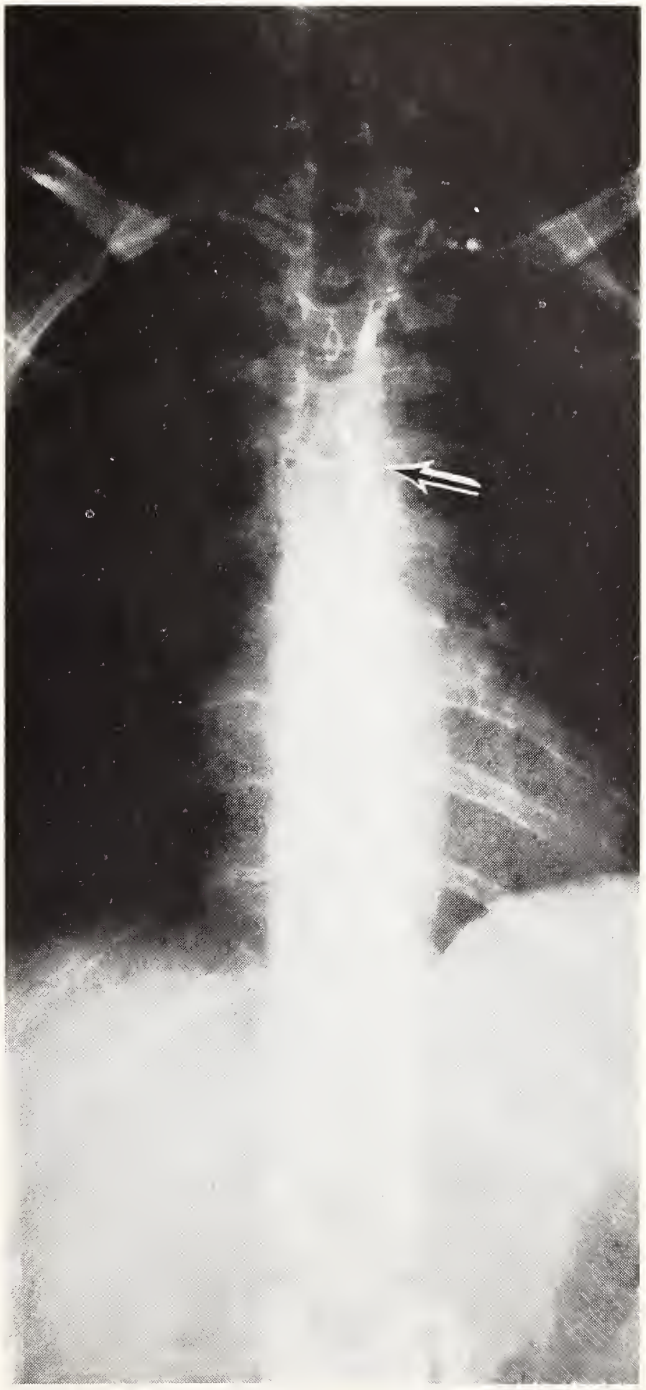


Figure 5. Anteroposterior radiograph of the chest of the same patient in *Figure 4*, taken in supine position at the end of the injection, demonstrating the thoracic duct draining in the left subclavian vein and filling of the left supraclavicular nodes.

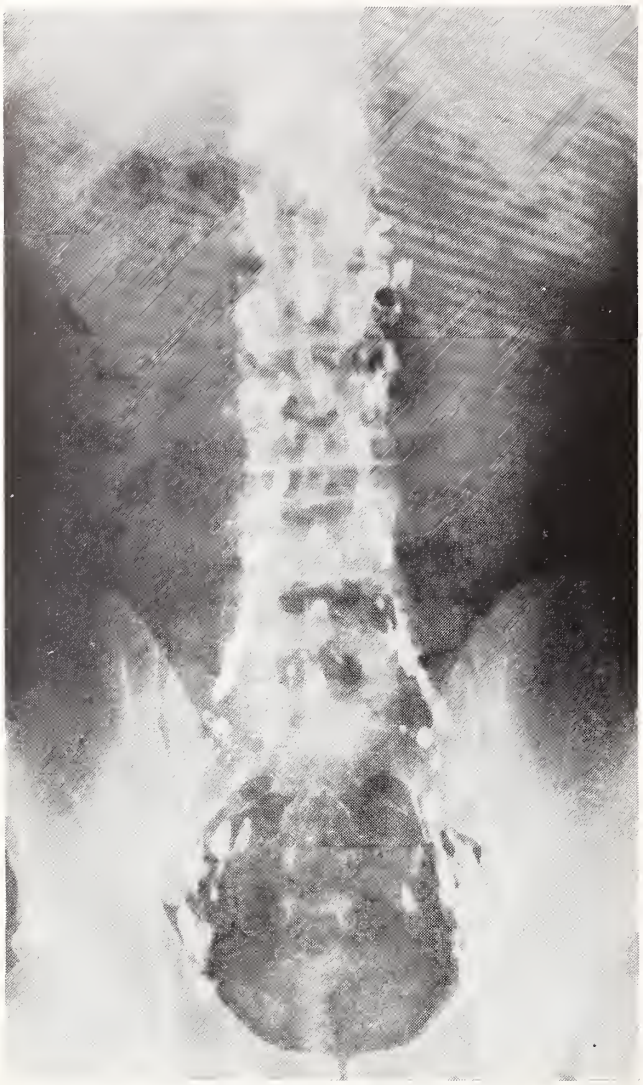


Figure 6. Radiograph of the same patient of *Figures 4 and 5* made 24 hours after the injection of Ethiodol, revealing excellent opacification of the normal lymph nodes. The lymphatic vessels are empty.



Figure 7. Lateral view of the same patient in previous figures showing good visualization of the normal periaortic lymph nodes.



Figure 8. Twenty-four-hour film of a 26-year-old female with diagnosis of Giant Follicular Lymphoma made from a biopsy of the right axilla. Patient had splenomegaly but minimal systemic symptoms. All the lymph nodes in the pelvis and retroperitoneal space appear to be abnormally enlarged with exaggeration of the reticular configuration (lacy pattern). Excretory urogram shows the ureters to be only slightly displaced despite the marked enlargement.



Figure 9. Oblique view 24 hours after contrast medium injection in a 45-year-old white male with fever of undetermined cause, anorexia and weight loss. Physical examination and extensive workup including bone marrow had been negative. Note huge enlargement of the lymph nodes almost completely replaced by tumor. There is fairly good preservation of the periphery characteristic of Hodgkin's disease: This was proven by biopsy at surgical exploration.



Figure 10. Lymphangioadenogram combined with excretory urogram of a 46-year-old white female with left inguinal lymphadenopathy which was proven by biopsy to be a Giant Follicular Lymphoma. Note massive enlargement of all lymph nodes. In the pelvis they appear with large central filling defects; in the retroperitoneal area they do not fill completely due to almost complete replacement by tumor. Note also, displacement of the ureters and the left kidney (arrows).



Figure 11. Film taken several hours after injection of the contrast material in a six-year-old boy with edema of the left lower extremity. The venogram showed no obstruction. This lymphangiogram reveals complete obstruction at the level of the femoral and inguinal areas, the vessels are dilated and tortuous and at no time was collateral circulation seen. A biopsy was done. The final conclusion: congenital lymphedema and cystic hygroma.

by the lymphanogiographic pattern in the early stage of involvement.[7, 8]

In carcinoma the periphery of the lymph nodes has a motheaten appearance, although it may be irregular in the center. An important point is to recognize this appearance from fatty replacement or fibrosis within the nodes due to inflammatory processes which occur mainly in the lower pelvis and inguinal areas.

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Gastric Photography

Clinical Use of Gastrocameras

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ENDOSCOPY HAS BECOME more important in recent years due to refinements in instrumentation and the training of more physicians who are adept in these techniques. Gastroscopy was introduced into this country by Schindler in 1934[1] and the lens instruments have been in wide use for many years. The use of the fiberscope was first reported in 1958[2] and subsequently it obtained widespread use.

Although the gastrocamera technique has been used in Japan for 15 years, it was first introduced into the United States in 1962. Morrissey, et al,[3] first reported on the value of the Japanese Gastrocamera in this country. Since that time reports have been published in the English literature from several centers describing early experiences with these techniques.[4-10]

At the University of Kansas Medical Center the Olympus GT-5 Gastrocamera was first used in March 1966. This report summarizes our experience with this instrument and with the Olympus GTF-A Gastrocamera fiberscope which we have been using since June 1967.

Subjects and Methods

This group of patients consists of 240 men and 139 women from the University of Kansas Medical Center and the Kansas City Veterans Administration Hospital. This is a selected series in that patients were seen by the Gastroenterology Section in consultation or were referred to the hospital because of specific gastroenterological disorders.

The age span was from 10 to 92 with a median age of 55 years. Eighty per cent of patients were over 40 years old, with the ages divided in decades on *Table 1*.

There were 475 examinations with repeat examinations in 61 patients as tabulated in *Table 2*. In the latter period of this study examinations of patients with both instruments were performed in 53 cases.

The technique for doing survey examinations of the stomach with the GT-5 Gastrocamera has been described by Morrissey, et al.[11] The GTF-A was used as with previous routine fiberscope examinations with a complete film strip of representative areas taken on each patient. The patients were prepared in a standard manner for endoscopy as reported by Laing and Klotz[12] using Meperidine, Atropine and Pontocaine. The procedure can be readily accomplished on an out-patient basis.

Results

In many instances the interpretation of endoscopy and of gastrocamera films was confirmed by the clinical course. Histological confirmation was possible in only a selected segment of the total experience. Biopsy or surgery was accomplished in cancer cases, where there was suspicion of malignancy and in benign conditions which were refractory to usual medical management. In some cases biopsy was done for confirmation of diagnosis.

In our experience of 528 examinations, gastrocameras are a significant advance in visualizing and photographing the entire stomach, with rare exceptions.

Film records of each procedure using GT-5 enable study by all physicians involved in the management of the patient. The teaching value of these films in a training program is most significant.

GASTRITIS

For the purposes of this discussion the patients have been designated into four categories: (1) hypertrophic gastritis; (2) atrophic gastritis; (3) erosive or superficial gastritis, and (4) postoperative gastritis.

TABLE 1

AGE DISTRIBUTION OF PATIENTS

Age	10-20	21-30	31-40	41-50	51-60	61-70	71-80	81-
Number of patients	7	16	38	95	95	78	45	5

* Department of Medicine, Section of Gastroenterology, University of Kansas School of Medicine.

TABLE 2
REPEAT EXAMINATIONS

Number of examinations	2	3	4	5	6	7	8
Number of patients	43	10	4	2	0	1	1

Table 3 shows the incidence of diagnosis of these lesions in the total series of patients. By using the gastrocamera technique with distention of the fundus with air many cases show changes which suggest mucosal atrophy with vascular patterns being easily seen through this whitish mucosa. Such cases were not included in the above table. The diagnosis of gastritis is based on the endoscopic appearance with no attempt being made to correlate these findings with symptomatology.

TABLE 3
GASTRITIS

Hypertrophic gastritis	30
Atrophic gastritis	39
Erosive or superficial gastritis	66
Postoperative gastritis	32
Total patients	167*

* 40 patients had more than one type of gastritis.

Gastric Ulcer

Superficial ulceration is separated from deep ulceration by judging the depth of the crater and edema of the margins. Superficial ulceration with a grayish-white base surrounded by erythema was seen in 24 patients. These shallow ulcers would not be expected to be found by radiographic techniques. Nine of these cases were seen in patients with gastroenterostomy stoma. Deep ulcers were seen in 64 cases with many of these studied by serial examinations. Benign ulcers were proven histologically in six patients who were refractory to medical management.

Benign gastric ulcer was associated with atrophic gastritis in eight cases, and hypertrophic gastritis in 11 cases.

Three patients who had active duodenal ulcers had a concomitant benign gastric ulcer. Gastric ulcers were associated with neoplasia in 17 cases. Two of these 17 appeared benign at the time of the first examination.

In five patients who had radiographic findings of gastric ulcer, the ulcer was not visualized with the GT-5 gastrocamera. Three of these patients had gastroscopy simultaneously and in two the ulcer was visualized in the antrum. In the third patient, who had a pyloric canal ulcer, erythema and deformity of the distal antrum was noted at both gastroscopy and gastrocamera examination, but the ulcer crater was not seen.

Neoplasms

Neoplasms were seen in 58 cases with some of these confirmed histologically *(Table 4)*. Benign neoplasms confirmed at surgery included three leiomyomas, two benign polypoid lesions and one case of aberrant pancreatic tissue. Malignant neoplasms proven surgically included 16 carcinomas, 2 reticulum cell sarcomas and 2 lymphomas. In cases of submucosal tumor a specific diagnosis is difficult without surgical removal.

Gastroenterostomy Stomas

Patients who had gastric surgery were photographed with difficulty (14 of 30) using the GT-5 Gastrocamera and no useful photographs were obtained in several patients with an incomplete examination in a larger group. Photographs with this instrument are taken blindly. Accurate photography of the stoma, using the GTF-A helps appreciably in visualizing these cases. We have diagnosed stomal ulceration in nine cases and inflammation changes of the stoma are seen in many cases (38 of 59 cases). The gastric pouch in many cases has atrophic changes.

Discussion

In this type of retrospective review it is not possible to discuss incidence of disease in terms of any population group, but rather to relate our experience in a particular type of practice.

TABLE 4
NEOPLASMS

	Patients	*Proven Diagnosis*
Aberrant pancreas	1	1
Polyps, single	20	1*
Polyps, multiple	7	1
Submucosal masses	3	0
Leiomyoma	3	3
Carcinoma	20	16
Reticulum cell sarcoma	2	2
Lymphoma	2	2
Total patients	58	

* Two other patients had surgery for polyps but one was an enlarged fold and the second was edema around a deep penetrating ulcer.

GT-5 Gastrocamera and GTF-A Gastrocamera-Fiberscope

The difficulty of comparing the efficiency of one instrument to another is shown in a study of the fiberscope and gastroscope reported by Kubin and Klotz.[13] Each instrument has particular advantages and the use of a variety of techniques is necessary to obtain maximum information in the individual case.

At present we are using the GT-5 Gastrocamera as a survey instrument in patients with no focal gastric lesions on x-ray examination. The GTF-A is then inserted to observe motility and photograph representative areas. Although it is possible to examine the fundus and cardioesophageal junction with the GTF-A, we do not routinely do this for reasons to be discussed later. We rely on the GT-5 for pictures in this area.

Where focal lesions are present we would usually use both instruments. Using the GT-5 we can focus on an area of interest and take multiple views of the lesion. This study is then augmented with GTF-A visual impression and photographs. Since motility waves in the antrum sometimes obscure distal lesions, the GTF-A provides photographs of lesions which might be missed using "blind" photography. In only one case have we identified a lesion with the GT-5 which was missed with the GTF-A. Using the fiberscope there is a tendency to focus on only part of the stomach rather than doing a complete survey examination. An occasional patient is reluctant to swallow the larger GTF-A after having previous examination with the GT-5.

Radiology and Endoscopy

With the endoscopic instruments now available it is possible to visualize virtually all areas of the stomach. The rare exceptions are distal antral lesions obscured by spastic contractions proximally and severe deformity of the body of the stomach due to spasm or previous surgery. It seems fruitless to compare x-ray examination with photographs of the gastric mucosa since each technique has its own peculiar advantages and disadvantages. X-rays should always be done prior to endoscopy and are used in screening patients. They direct the endoscopist in his examination.

Photographs of intragastric pathology amplify the information obtained at upper gastrointestinal x-ray examinations especially when the first examination is inconclusive. Endoscopy may uncover some lesions not suspected by the radiologist. In some cases when a lesion is suspected by x-ray, endoscopy has been negative thus avoiding unnecessary surgery in such patients. The endoscopist is better able to describe diffuse lesions such as gastritis and can visualize areas seen poorly by x-ray such as the fundus, cardioesophageal junction, gastroenterostomy stomas, and postoperative changes.

Accuracy of Diagnosis

Without pathological material, it is impossible to be absolutely sure of exact diagnosis in a larger per cent of cases. In this series of ulcers subsequent gastrocamera studies in two cases which initially appeared benign, revealed that they were malignant and this was confirmed by surgery. All endoscopy is used with radiography, cytology and gastric analysis as additional aids in precise diagnosis.

Value of Photographs in Consultations

In the past there has been occasional difficulty convincing colleagues of the gastroscopic observations. Photographs can be shown to the referring physician and the lesions discussed. Photographs also provide a permanent record of lesions to compare with subsequent examinations. In the patient requiring surgery the lesion can be accurately delineated so that the surgeon can know its extent and plan appropriately.

Value of Gastrocamera Film File

The permanent record of endoscopy with GT-5 or GTF-A serves as a teaching tool which is unvaluable in a training program for clinical gastroenterology. These films are of great value to any physician doing endoscopy both for review and self-teaching. Training in endoscopy involves techniques which are now mastered with little difficulty; however, the interpretation of gastroscopic findings requires much experience. The retrospective study and review of one's permanent record of endoscopic experience should speed up this process considerably.

Complications

In this series of over 500 examinations, one patient sustained a perforation of the cervical esophagus with GT-5 early in our experience. Surgical closure was accomplished with no sequelae. We have encountered no other complications of significance in the last 500 examinations in two years. We have been able to retroflex the GT-5 in most all cases; in a few cases anatomical deformity precluded this maneuver. Using the GTF-A we have been able to examine the upper stomach in a number of cases without any complication. However, in two cases, the patient had much difficulty retaining air and when the stomach collapsed around the retroflexed instrument we found that there was a problem removing the instrument, though we were able to accomplish this successfully without surgery. While impaction

(Continued on page 150)

Lymphoma—Meningitis

*Listeria Meningitis and Septicemia in an Adult With Malignant Lymphoma**†*

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A case of meningitis with septicemia due to *Listeria monocytogenes* type 4b in a 54-year-old farmer with Hodgkin's sarcoma is reported. The meningitis and septicemia were successfully treated with penicillin and tetracycline. Subsequently, the patient died of disseminated Hodgkin's disease with no active *Listeria* infection detectable at autopsy.

This patient had a low IgM gamma globulin level and did not develop significant antibodies against *Listeria* as a result of the infection, both of which suggested a deficiency of host immune mechanism leading to susceptibility of infection. However, determination of phagocytosis index and active immunization with influenza vaccine did not reveal measurable abnormalities. It is believed that the cause of death is related to the primary disease rather than listeriosis.

LISTERIOSIS IN THE HUMAN ADULT is a relatively rare occurrence, the incidence being greater in the newborn. The most common form of clinical illness is that of meningitis or meningo-encephalitis. In 1954, Finegold[1] reviewed 39 cases, 17 of which were adults. Since 1962, 11 cases have been added to the English literature and only six of these involved adults.[2-6]

Case Report

The patient was a 54-year-old white farmer admitted to the University of Kansas Medical Center on January 11, 1965, with the chief complaint of fever, chills and confusion.

Two months before admission, the patient had experienced progressive shortness of breath, orthopnea and nocturnal dyspnea. Three weeks before admission, he developed a generalized headache associated with a cold and became periodically confused. One week later, the patient was admitted to a local hospital with a fever of 105° F accompanied by severe malaise, basilar rales and ankle edema. Penicillin G and chloramphenicol were given for four days without clinical improvement and patient continued to have fever between 100 to 103° F. Methicillin was given for ten days. The patient showed improvement and was discharged. Forty-eight hours after discharge, he had a recurrence of fever to 105° F associated with chills, and was re-admitted to the same hospital. Physical examination did not reveal localized signs and no abnormal chest findings were noted. The patient's fever course failed to respond to methicillin therapy this time. Tetracycline with nystatin was given for four days also without success. Chloroquine was tried for another four days for possible malaria infection without altering the fever course. Three days prior to admission, the patient became irritable, uncontrollable, more confused and was transferred to the Medical Center.

In November 1964, one of the cows on the patient's farm had an abortion and he had disposed of the carcass. He had been using water from a covered well. No family member had illnesses during the period when the patient was sick.

The patient was blind in his left eye since childhood. A gastrectomy was performed in 1961 for a benign gastric ulcer.

Physical examination on admission showed that the patient was agitated, disoriented, thin, dehydrated and poorly responsive. Rectal temperature was 101.8°F. Blood pressure was 160/90; pulse rate was 92/min. and regular. There was complete blindness in the left eye. An absent light reflex and a flat optic

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disc were noted in the right eye. Several enlarged axillary lymph nodes, 0.5 x 1 cm were palpable bilaterally. Examination of the lungs and heart was not unusual. There was a median laparotomy scar and the liver was palpated 3 cm below the costal margin. Neurological examination revealed a noticeably stiff neck but without localizing signs.

The laboratory findings on admission showed a hemoglobin of 13.4 gms, hematocrit of 34 per cent, WBC of 6,480 with segmenters 70 per cent, bands 18 per cent, lymphocytes 4 per cent, monocytes 8 per cent and platelets 126,000/mm. Erythrocyte sedimentation rate (ESR) was 1-4 mm/hr. VDRL was weakly reactive and Reiter protein negative. Initial lumbar tap showed an opening pressure of 290 mm and closing pressure of 180 mm of water. The cerebrospinal fluid (CSF) was turbid with sugar less than 10 mg per cent (blood sugar 114 mg per cent), proteins 242 mg per cent and serology nonreactive. A Gram stain of CSF smear showed gram-positive organism simulating diplococci. CSF culture grew *Listeria monocytogenes* after 24 hours. Three blood cultures on admission also grew *Listeria monocytogenes.* Intermediate strength purified protein derivative (PPD) and histoplasmin skin tests were negative. Protein electrophoresis: total proteins 5.5 gms, gamma globulin 12 per cent, beta globulin 14 per cent, alpha-2 globulin 16 per cent, alpha-1 globulin 6 per cent and albumin 48 per cent. Immunoelectrophoresis showed a decrease in the IgM fraction. Histologic examination of right axillary node showed malignant lymphoma, Hodgkin's sarcoma type. Bone marrow was reactive. The chest x-ray was normal. EEG showed moderately severe generalized brain dysfunction.

He was treated for bacterial meningitis initially with penicillin, sulfadiazine and chloramphenicol. Following identification of the etiological agent to be *Listeria monocytogenes,* intravenous penicillin G in a dosage of 4 million units every four hours and 2 grams of tetracycline daily were administered. Blood and CSF cultures taken 48 hours after initiation of antibiotic therapy did not show bacterial growth. Within five days, the patient became afebrile. Although he was confused and uncommunicative on ad-

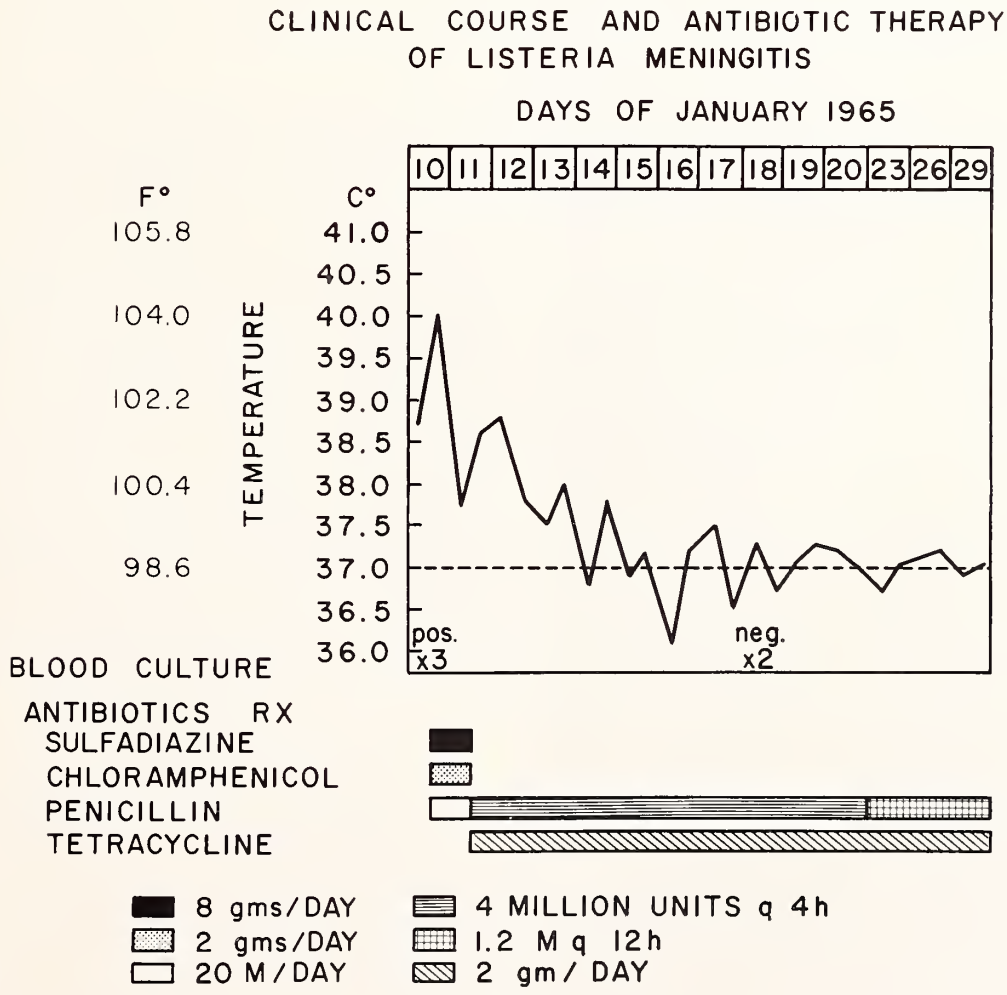


Figure 1

TABLE 1

LABORATORY EXAMINATIONS OF CEREBROSPINAL FLUIDS IN LISTERIA MENINGITIS

	1/10/65	*1/12/65*	*1/18/65*	*1/29/65*
Opening pressure (mm. of H_2O)	290	520	146	100
Closing pressure (mm. of H_2O)	180	420	70	74
Gross appearance	turbid*	turbid*	clear*	clear
WBC	(?)†	341	12	2
Neutrophils %		86	50	
Mononuclears %		14	50	
RBC	6	59	1	2
Sugar (mg. %)	10	14	34	40
(Simultaneous blood sugar)	138	102	102	164
Proteins (mg. %)	242	282	151	73
Chlorides (mEq./L.)	——	100	——	109
Kolmer	nonreactive	——	——	——
Glutamic oxalocetic transaminase			51	31
Smear (gram stain)	positive	negative	negative	negative
Routine culture	positive	negative	negative	negative
Smear for AFB	negative	negative	negative	negative
AFB culture	negative	negative	negative	negative
India ink preparation	negative	——	——	——

* Also xanthochromatic.
† Total count and differential were not available.

mission, he began to show some mental improvement and was able to understand and speak coherently by the 12th day of antibiotic therapy. He was discharged on February 2, 1965. The febrile course and antibiotic therapy are summarized in *Figure 1*. Results of serial cerobrospinal fluid examinations are listed in *Table 1*.

Five days after discharge, the patient developed a fever of 104°F, accompanied by headache and was readmitted. Except for the fever and mental confusion, he did not present other abnormal findings and his neck was supple. Lumbar puncture did not reveal cells in the CSF. Sugar was 44 mg per cent (blood sugar 84 mg per cent) and protein was 54 mg per cent. Three blood cultures and CSF culture were all negative. The peripheral blood smear showed a leucocytosis of 15,640 with 31 per cent segmenters, 27 per cent bands, 6 per cent lymphocytes, 3 per cent monocytes, 1 per cent metamyelocytes and 32 per cent undifferentiated and immature mononuclears. Bone marrow biopsy findings at this time were compatible with acute leukemia. Repeat lymph node biopsy revealed similar findings as previously seen, showing malignant lymphoma of the Hodgkin's type.

Twenty-four hours after admission, the patient developed coarse moist rales at the right lung base with x-ray evidence of pneumonia. Sputum culture grew out predominantly pneumococci. He was treated with cephaloridine for pneumococcal pneumonia and was discharged on the 13th hospital day.

The patient returned home and was apparently doing quite well for the ensuing two weeks until two days prior to his death when he showed a return of fever, confusion and anorexia. He died rather suddenly on March 9, 1965, 17 days after discharge while attended by his local physician.

Postmortem examination revealed the cause of death to be an acute, severe, bilateral bronchopneumonia. There was generalized histiocytic lymphoma involving the cervical, paratracheal, portohepatic and retroperitoneal lymph nodes, bone marrow, spleen, liver and the right kidney. In the central nervous system, there was chronic focal paraventriculitis and meningitis. The body was embalmed prior to autopsy and consequently no bacteriological cultures were made.

Laboratory Investigation

The organism isolated from the CSF and blood was a motile gram-positive bacillus. Growth occurred in brain-heart infusion broth and in 5 per cent sheep or rabbit blood agar, with beta-hemolysis. It was catalase, Voges-Proskauer and methyl red positive and fermented dextrose. A broth culture of the organism was inoculated into two guinea pigs, one into the conjunctival sac, the other intraperitoneally. On

conjunctival inoculation, severe conjunctivitis and keratitis were produced. By intraperitoneal inoculation, multiple abscesses were noted in the liver which showed collections of lymphocytes and macrophages on microscopic examination. Gram-positive organisms morphologically and biochemically resembling the original culture used for guinea pig inoculation were recovered from the abcesses. By serological typing at the United States Public Health Service Communicable Disease Center, the organism was identified as *Listeria monocytogenes* type 4b.

Antiobiotic tube dilution sensitivity tests were performed on the *Listeria* organism isolated from this patient with the following results:

	Bacteriostatic mcg/ml	*Bactericidal mcg/ml*
Penicillin G	< 0.2	25.0
Erythromycin	< 0.2	3.1
Streptomycin	25.0	50.0
Tetracycline	12.5	>100.0

Serum inhibition test performed on January 16, 1965, which was the sixth day after initiation of antibiotic therapy showed a bacteriostatic level of 1/128 and bactericidal level only demonstrated in undiluted serum. Inhibition tests performed with cerebrospinal fluid collected on January 18, 1965, revealed bacteriostatic level of 1/32 with no bactericidal effect even on the undiluted spinal fluid specimen.

Investigations on the patient's host immune mechanism were carried out. Serum collected on January 16, 1965, failed to show agglutination of the *Listeria* organism at 1/40 or greater dilutions, while a serum from a healthy normal individual which served as control had an agglutination titer of the same organism at 1/160. Indirect immunofluorescent staining[7] on *Listeria* organisms using the patient's January 16, 1965, serum and three other sera from normal individuals all showed fluorescence from dilutions 1/10 through 1/160. It has been reported that sera from normal population had an immunofluorescent titer for *Listeria* organisms in this range.

Phagocytosis index performed on February 19 revealed no demonstrable difference between the ability of the phagocytes from the patient and two normal individuals in phagocytic action against type 2 pneumococci. To test the response to active immunization, the patient was given 1 ml polyvalent influenza vaccine subcutaneously on January 26, 1965, and again on February 15, 1965. The results of the hemagglutination-inhibition tests performed according to the standard methods[8] are as follows:

	Influenza Viral Antigens	
	PR-8	*A2 (Jap/305)*
Preimmunization (1/26/65)	1/64	<1/16
After 1 injection (2/15/65)	1/64	<1/16
After 2 injections (2/20/65)	1/2048	1/256

Discussion

A 54-year-old farmer presented with meningitis and septicemia due to *Listeria monocytogenes* which was associated with an initially asymptomatic and localized Hodgkin's sarcoma. The latter finding supports the view that there may be a predisposing factor for the rare occurrence of human adult listeriosis, usually a malignancy. A case of anaplastic lymphosarcoma which later developed *Listeria* meningoencephalitis was reported by Brennaas.[9] Other diseases reported in association with human listeriosis were disseminated lupus erythematosis,[10, 11] advanced tuberculosis, Parkinsonism, alcoholism, cirrhosis, hydrocephalus, sacral dermoid and heart diseases.[12] In our patient, we believe that antibiotics effected a cure of the *Listeria* infection but he died of disseminated lymphoma complicated by bronchopneumonia.

Listeriosis is worldwide. It is prevalent among domestic and farm animals such as cattle, sheep, goats, pigs, fowls, horses, dogs, and cats where it is manifested as encephalitis, meningoencephalitis or encephalomyelitis in older animals; sepsis with parenchymatous abscesses in younger animals, rodents and poultry; and abortion in pregnant animals.[13]

The route of infection in our case is obscure but there was a possible direct contact with a dead abortus of a cow a month prior to his illness. Unfortunately, no investigation on the carcass was made. According to Librach[14] in a report of a similar case, the presence of septicemia suggests the entry is through the skin and meningitis is secondary to bloodstream infection. The greater incidence in males is most likely due to occupational exposures.

Murray[15] gives the following forms of listeriosis with their corresponding frequency of occurrence: meningitis or encephalopathy 33 per cent; granulomatosis 29 per cent; septicemia 21 per cent; mononucleosis 8 per cent; and conjunctivitis 6 per cent. These are more frequent in the newborn than the adult.

A definite diagnosis of *Listeria* meningitis cannot be made clinically. The manifestations resemble other forms of purulent meningitis or septicemia. Therefore, bacteriological, serological and animal pathogenicity studies are necessary to determine the etiological agent. A morphological resemblance of *Listeria* with diphtheroids, lactobacilli, erysipelothrix,[16] pneumococci, *Hemophilus influenzae*[17] and streptococci makes the examination of a smear difficult as pointed out by Welshimer[18] in his case report. Eveland[19]

suggested the use of the fluorescent antibody technique with a polyvalent serum to identify *Listeria* in suspected cerebrospinal fluid. Nelson[20] used the fluorescent antibody technique to screen suspected cultures and to type *Listeria monocytogenes*. Of the four serological types, type 4b is the most prevalent in the United States, occurring three times more often than type 1 which is the next common type, according to King.[21]

The production of keratoconjunctivitis after inoculating the guinea pig or rabbit's conjunctiva with a broth culture of *Listeria monocytogenes* (Anton's test)[13] is a differentiation of this organism from diphtheroids. The intraperitoneal inoculation of *Listeria* in the same animals would produce parenchymal abscesses involving the liver, kidneys, heart, lungs and brain. The recovery of the organism from both of the above tests completes the evidence.

We were unable to demonstrate any difference in *Listeria* antibody titers between three normal sera and the patient's serum using the indirect fluorescent antibody technique. In addition, patient's serum had a *Listeria* agglutination titer less than 1/40 which was probably not significant. Winblad[22] studied antibody titers in human listeriosis, healthy persons, infectious mononucleosis and obstetrical patients. He concluded that 0 agglutination titers higher than 1:64 and complement fixing titers higher than 1:30 were significant of recent or present infection with *Listeria monocytogenes* and found 2.9 per cent of 240 healthy blood donors with such titers. He also suggested that increased titers in bacteriologically verified human listeriosis are seen especially in the absence of antibacterial treatment. Seeliger[13] emphasized serological cross-reactions between *Listeria monocytogenes* and many gram-positive bacteria as *Staphylococcus aureus* and enterococci which may be explained by the presence of a non-species specific antigen common in many gram-positive organisms. Adsorption tests were suggested to avoid such cross-reactions. Because of previously mentioned observations, serological tests are insufficient diagnostic criterion and considered significant only in titers of 1:320 or greater or a rise in titer by at least four-fold during convalescence.[13]

Immunoelectrophoresis on our patient's serum showed a decrease in the IgM fraction of the immune globulins. Whether this deficiency had played a predisposing role in acquiring the infection is worth speculating. On the other hand, investigation on the patient's host immune mechanism revealed a normal phagocytosis index and a normal response to influenza vaccine immunization. If there was a deficiency on this patient's immune mechanism, perhaps the currently available laboratory methods were not sensitive enough to detect such deficiencies.

The success of treatment in listeriosis depends on the sensitivity of the organism as determined by tube dilution and serum inhibition tests. Tetracycline is considered by Seeliger[13] as the best antibiotic followed by sulfonamides. He also mentioned that the combination of penicillin with either tetracycline or sulfonamides may be satisfactory. Other reports include a combination of penicillin with either streptomycin, chloramphenicol or erythromycin. We believe that the combination of tetracycline and intermittent intravenous penicillin to achieve periodically effective bacterial inhibitory levels in the central nervous system was an effective treatment in our patient as evidenced by the negative blood and CSF cultures 48 hours after initiating therapy and absence of active pathological findings on postmortem examinations.

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Leptospirosis—Social Factors

Leptospirosis in Prison Inmates: Social Factors in Communicable Disease

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Serological and socio-economic data are presented on 298 (123 and 175) subjects from two studies of male prison inmates. The rates of positive serologic reaction for leptospirosis were 4.9 and 5.7 per cent. These are significantly different rates than reported from randomly selected groups of the general population without occupational exposure.

This prevalence more closely resembles that of certain classically exposed high-risk groups (6.3%) and may represent a population exposed to leptospirosis as a result of their socio-economic status, residence in a core area of a large metropolitan district, or employment as general laborers.

Illness behavior data demonstrate this group is located in the socio-cultural blind spot of most physicians.

THE VAST MAJORITY of cases of leptospirosis reported in the literature have been among veterinarians, slaughterhouse workers, poultry dressers and related occupations. Physicians have been aware of this disease as an occupational hazard for some time.

Technical methods for positive confirmation of exposures to leptospiral organisms in a suspected case of the disease have become increasingly more sophisticated and less expensive. Therefore, these tests are more useful and more widely available now than at any time in the past 20 years.

The availability of these tests has stimulated their use in many cases where the diagnosis would not otherwise have been considered. Illnesses have been confirmed as leptospirosis in patients who apparently contracted the disease by swimming in contaminated water, by wiping up dog urine, and rarely by direct human contact. Physicians are becoming aware of leptospirosis as a wide-spread disease not limited to the classical slaughterhouse occupational setting.

Stockard[1] recently stated the growing need for awareness of social, as well as occupational factors in the transmission of this disease:

> It now seems clear that the distribution of human infection with different leptospiral agents is governed by those activities of man and the *leptospiral carriers* which lead to a *close association of the two in a variety of environments favorable for the transmission of the disease.*

The present study is based on the speculation that one of the environments favorable for the transmission of the disease is the hygienically sub-standard core area of the city. Data collected earlier[2] in a study of rats from this core area demonstrated a high prevalence of infection (30%) with leptospirosis.

Human subjects for the study were selected from a population whose social status and residence indicated they were generally in "close association" with the leptospiral carriers.

Methods

The Department of Preventive Medicine supports a program of research and teaching in Community Health during the summer months in conjunction with various local social health and welfare agencies. One of the agencies which participates in this program is the Kansas City, Missouri, Municipal Farm, a misdemeanor penal institution. Among the more common charges brought, which result in institutionalization are loitering, vagrancy and intoxication in public.

The usual residence of the inmates (outside the municipal farm) is in, or close to, the core area of the city referred to above. Subjects were taken from this population at random.

During the summer of 1965 the serum of 123 male inmates was screened for evidence of antibody against leptospirosis. Standard microscopic slide agglutination technique and formalin killed antigen pools described by Galton, *et al.*[3] were used. The antigens contained in each pool are shown in *Table 1.* In addition, a questionnaire was administered to each subject concerning his residence, annual income, occupation, personal medical care habits and illness behavior.

This procedure was repeated during the summer of

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TABLE 1

POOL NUMBERS AND LEPTOSPIRA ANTIGENS USED TO SCREEN PRISON INMATES

Pool Number	*Antigens*
Pool I	L. icterohemorrhagia (rat, mouse)
	L. ballum
	L. canicola (dog)
Pool II	L. bataviae
	L. grippotyphosa (racoon, skunk, fox)
	L. pyrogenes
Pool III	L. autumnalis
	L. pomona (cattle, swine)
	L. Sejroe
Pool IV	L. australis
	L. hyos
	L. minigeorgia (possum, skunk, racoon)

1966 with slight modification. The initial questionnaire was replaced by a more specific series of questions relating only to residence in the city, occupation and past medical history of any of the manifestations of the various clinical syndromes associated with leptospirosis infection. One hundred and twenty-five subjects were interviewed and had serum drawn.

Results

Serological Data

Table 2 shows the total number of subjects tested each year, the number of positive serological tests for leptospirosis and the percent positive. The responses of the 1965 group are further subdivided in *Table 3*.

Table 3 demonstrates the clustering of responses to Pool I which contains L. icterohemorrhagic and leptospira canicola, and in Pool IV which contains leptospira mini georgia. There was a relative absence of response in Pool III, which contains the antigen for leptospira pomona, commonly associated with occupational exposure to infected cattle or swine.

TABLE 2

NUMBERS OF SUBJECTS SURVEYED AND POSITIVE REACTORS TO LEPTOSPIRA SCREENING

Year	*Cases*	*Number Positive*	*Per Cent Positive*
1965	123	6	4.9
1966	175	10	5.7

In only one subject (Case 5), was there a history of possible exposure outside the area of usual residence. He had recently been swimming in a stagnant farm pool, frequently used by cattle. He presented with mild fever and icteric sclera.

Case number 1 had been in the infirmary in Europe during World War II, where leptospirosis is known to have been prevalent, but could recall no febrile or other illness at that time.

Case number 2 had worked as a butcher's helper in the past five years. However, the duration of his employment was short (three months) and he demonstrated reactions to Pools I and IV but not to Pool III, which contains leptospira pomona.

TABLE 3

1965 STRENGTH OF MICROAGGLUTINATION RESPONSE TO LEPTOSPIRA ANTIGEN POOLS IN SIX MUNICIPAL FARM PRISONERS

Case Number	*Age*	*History of Possible Occupational Exposure*	*Antigen Pool Reaction* I	II	III	IV
1	42	No	±			±
2	38	No	1+			1+
3	27	No	2+			±
4	32	No				2+
5	19	Yes	3+	2+	1+	±
6	57	No	1+			

Sociological Data

Sociological data were obtained on 123 subjects (1965 study). These data revealed the following information about the population from which the cases of leptospirosis came. One hundred and five subjects (85.4%) earned less than $3,000 last year. Eighty-six subjects (71%) worked less than half the time in the past two years. Seventy-two subjects (58.5%) worked as unskilled laborers. Of interest also is a high percentage of relative stability of the two study populations. One hundred and one subjects (82%) of the 123 subjects studied in 1965 had lived in Kansas City five years or more. Similar figures for the 1966 study were $\frac{115}{175}$ = 65 per cent.

Additional data revealed that 77 of 123 (63%) and five of six positive reactors (83%) lived in coded areas number one or two designated as "core area" of the city which coincided with high density rat population.[2] Similar data confirmed these figures in the 1966 re-evaluation study.

Illness Behavior

Questions about medical care habits and illness behavior revealed that 74 (60%) had no family doctor. Thirty-seven (30%) had wanted to see a physician in the past year but couldn't because "it was too expensive." In over half of the subjects, this occurred at least once during the past year.

The subjects were asked what they usually do in case of medical complaints such as severe headache, fever over 101° F and persistent dizzy spells.

In the absence of a family physician who might render medical care free and without money to seek care elsewhere, 37 (30%) usually seek advice from a druggist, 59 (48%) say they do nothing and 75 (61%) say they usually treat themselves with "patent" medicine on hand.

Discussion

Table 4 illustrates compiled data from six studies of various occupational and "control" groups. These statistics are presented as background information and are not strictly comparable as they come from different study populations. The two major sources of information are from reports of subjects exposed in the course of their occupations, that is, meat packers and veterinarians, and surveys of random samples of the population.

The prevalence of serological evidence of exposure to leptospira in the meat packing industry runs between 6.3 and 17.3 per cent positive.[4] In one study[8] of 104 veterinarians 9.5 per cent were shown to have serologic evidence of contact with leptospirosis.

The etiologic agent in the majority of these meat packing industry surveys was leptospira pomona, a finding which would be expected. The etiologic agent in one meat packing survey and in the survey of poultry dressers was leptospira icterohemorrhagia.

Rates of positive serologic reactions in low-risk or "control" populations have been reported from 0 to 1.3 per cent[4, 7] in small studies, to 0.5 per cent in one large survey of a random sample.

The data on socio-economic status and occupational history of the municipal farm population suggests that the group studied was different from those previously reported.

Low-risk populations reported previously have been university students,[4] candy company employees[4] and hospital bed patients.[6] The municipal farm population represents the unemployed, vagrant residents of the core area of the city. In addition, while two of the presently reported subjects (Cases 1 and 5) had possible histories of exposure (Europe 1940's; swimming in contaminated farm pond), only one subject (Case 2) had a history suggestive of occupational exposure (butcher's apprentice, short duration, five years prior to study; dog catcher, "short term"; chicken dresser, three months) exhibited no positive serologic reaction to Pool III which contains l. pomona, the most likely serotype involved in occupational exposure.

The other case (No. 5) gave no history of occupational exposure as a poultry dresser, fish cutter, miner, rat catcher, sewer worker, dog catcher, dock or slaughterhouse worker, or any other occupation thought to represent a high risk group.

TABLE 4

COMPILED STATISTICS: CLASSIFICATION OF PATIENT GROUPS SURVEYED FOR LEPTOSPIROSIS EXPOSURE VS. PER CENT POSITIVE IN EACH GROUP (FROM THE LITERATURE)—INCLUDING PRESENT STUDY

Group Classification	*Total No. Tested*	*Number Positive*	*Per Cent Positive*	*Bibliog. Ref. No.*
University students	146	0	0	4
Candy company employees	24	0	0	4
Survey of random sample of pop.	29,317	146	0.5	5
Hospital "controls"	336	3	0.9	6
Hospital "controls"	528	7	1.3	7
Municipal farm study (1965)	123	6	4.9	
Municipal farm study (1966)	175	10	5.7	
Meat packers	48	3	6.3	4
Meat packers	233	15	6.4	7
Veterinarians	104	11	9.5	8
Slaughterhouse workers	35	5	14.2	9
Federal meat inspectors	346	36	14.6	6
Poultry dressers	75	13	17.3	4

Heath *et al.* reported on the occupations of 483 patients who represented sporadic cases of leptospirosis. Sixty-five (16%) of the 382 whose occupations were known were unskilled laborers. Since 57 per cent of the present study population (83 per cent of the six positive cases) gave histories of being employed as general laborers, perhaps this suggests that it constitutes an occupational high-risk group.

Illness behavior data indicate that this is a group whose medical care patterns are strongly influenced by their economic, if not social, situation. Sixty per cent have no family doctor; 30 per cent had wanted to see a physician within the preceding 12 months but were unable to obtain medical care. When data from 1965 and 1966 are combined the majority (60%) sought consultation of a druggist and 60 per cent of them treated their minor ailments (many symptoms similar to mild leptospirosis) themselves with patent medicine. Finally, 48 per cent of them may not consult anyone at all, physician or druggist, for these ailments.

The serologic data indicates a prevalence of positive reactions of 4.9 per cent (1965) and 5.7 per cent (1966). These percentages are significantly different than those reported for low-risk or "control" groups and suggest that we are dealing with a population characterized by one or more high-risk factors.

Speculation as to the nature of the factors which result in this being a high-risk group apparently excludes most of the classical occupational factors, but must include area of residence, presence of an infected carrier in the residence area, other occupations, and a pattern of illness behavior which results in these subjects remaining in the socio-cultural blind spot of most physicians.

To thoroughly understand a disease requires that one knows more than just the etiologic agent and how to identify it serologically. It is also necessary to be familiar with the various types of host groups, occupational and nonoccupational, who may contract the disease. Finally, the data suggests that it is important to be familiar with the environment in which the host and agent interact. This includes not only the physical environment, important to the life cycle and transmission of the organism, but also the social, financial and cultural (illness behavior) environment.

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Gastrocameras

(Continued from page 141)

of the GTF-A with its manipulatable tip has not been reported; other fiberscopes have been reported to become impacted in three patients.[14] The endoscopist should keep this possible complication in mind.

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Continuing Education

—*For the Nurse Practitioner*

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In contemporary health care the role of the nurse is one of involvement as well as leadership in the planning and delivery of health services to people. Nurses must give attention to the ever changing and expanding knowledge and technology that can be realistically learned, disseminated, and utilized in influencing nursing care in the steadily expanding health services for an increasing number of recipients. Developments have continually extended the nurse's responsibilities and created a need for new types of educational programs. Indeed, a big gap exists between the experts and the practitioners in some fields of nursing practice. Concerted effort is needed to eliminate or at least reduce this fissure and ultimately improve the present health care. Yesterday's knowledge is relevant to only a few of today's problems.

Continuing education is one of the media through which nurses may receive assistance to maintain or update professional competence. Such media provide an opportunity for the practitioner to meet more completely the challenges of contemporary nursing through selected nursing content and problems under the guidance of expert faculty. By focusing on newer concepts and methods currently utilized in clinical practice, nursing education, and leadership, these programs enable nurses to improve their knowledge and nursing practice. In addition, changes in medical practice create changes in nursing practice and particularly as the recent emphasis within the nursing profession has focused on specialization in narrower fields. This is exemplified in the nursing care of cardiac patients which places a mandate on the practitioner to re-assess and evaluate individual nursing skills, knowledge, and delivery of services to patients.

Following World War II, continuing education for nurses was initiated at the University of Kansas Medical Center as the Department of Postgraduate Medical Education developed and expanded. Beginning in 1949 and for several years thereafter, a course designed to update inactive nurses was offered on an annual basis. The Department of Nursing Education made concerted effort in 1958 to accept continuing education as one of its obligations by delegating to the assistant chairman the responsibility for coordinating program activities in cooperation with the Department of Postgraduate Medical Education.

Initially, the content for each program was designed to assist a functional or clinical group of nurses to study concepts and problems in contemporary nursing. As many as ten programs have been offered during a single academic year, with each conference or symposia ranging in length from two to ten days. Occasionally programs specifically patterned for nurses in a particular interest group have been offered, such as rehabilitation nursing and operating room technics. Enrollments in these programs have been limited because of the purpose of the course, method of presentation, and specialized field of interest. Recently, the content for the annual programs presented by the Department of Nursing Education have been planned by a rotating committee comprised of faculty from nursing education and administrative staff from nursing service in cooperation with the Department of Postgraduate Medical Education. Content which is applicable to all areas of nursing has been the central focus of programs offered during the past three years. These symposia, "Facing Death," "Nursing in Emotional Crisis," and "Communications: The Human Dimensions of Nursing," each presented in two parts, have been well received by the participants. Multidisciplinary programs in which nurses, physicians, teachers, social workers, ministers and others are enrolled have been offered by the Department of Postgraduate Medical Education and have elicited much interest. The symposium on School Health, which has been offered annually since 1954, and the one entitled, "Medicine and Religion," are examples of multidisciplinary programs presented.

For a number of years the Department of Postgraduate Medical Education has planned jointly with the Department of Nursing Service in the administrative details for presenting in-service training courses in Operating Room Technics for Practical Nurses, Pharmacology for Licensed Practical Nurses, and the Clinical Review in General Nursing Care. The latter program was especially designed to assist the inactive nurse who is returning to nursing practice. Because of the content of these courses, it has been necessary to limit enrollment in order to accomplish the objectives.

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All continuing education programs for nurses, which have been non-credit in nature have received the encouragement and endorsement of the Kansas State Nurses' Association and the Kansas League for Nursing. In addition, many courses have had financial support from the Kansas State Department of Health; Kansas Heart Association; Kansas Division, Inc., American Cancer Society; Kansas Tuberculosis and Health Association; and the Kansas School Health Advisory Council. Several of the courses presented have been supported by grants from federal agencies. This financial support has made it possible to secure outstanding guest faculty for these courses.

Continuing education for nurses has been widely promoted through program announcements mailed to hospital administrators, directors of nursing service and directors of schools of nursing in as many as eleven states. School nurses, public health nurses, and members of the Kansas State Nurses' Association and physicians in the immediate area have also received the brochures through the mail. Reader items about these programs have been published in the *Kansas Nurse,* the official organ of the Kansas State Nurses' Association.

Additional faculty who can devote full time efforts in helping nurses to improve their knowledge and skill in nursing practice through continuing education are needed by the Department of Nursing Education. In order to increase the number of programs available to nurses, nursing education faculty cooperated with the Kansas Regional Medical Program (KRMP) in the design and implementation of courses which were initiated in the fall of 1967. One course, eight weeks in length, developed to provide basic knowledge and intensive clinical experience in the nursing care of critically ill patients with coronary heart disease was initiated in October 1967. The program is sponsored by KRMP through the cooperative efforts of four cardiologists and four hospitals in the greater Kansas City area. This represents an effort to disregard state lines in order to provide the best faculty and clinical resources for the training program. The course which is offered three times during the academic year has an enrollment limited to 12 nurses for each training period.

The supply of professional nurses provided by our 15 diploma schools, two associate degree, and two baccalaureate programs fall alarmingly short of meeting the need and the demand for personnel in the 163 general hospitals in the state. The problem of inadequate nursing personnel seems to be constantly increasing and in order to provide better health care some other means must be sought to fill this gap. The obvious solution, more manpower, is unrealistic. Updating those who are responsible for nursing care should further the improvement of care to patients. With this objective in mind, a circuit course for nurses focusing on care of patients with cancer, heart disease, and stroke was planned. As a pilot study, under the sponsorship of the Kansas Regional Medical Program, three nursing symposia have been planned for presentation in six centers selected on the basis of convenience to the largest number of nurses in the rural area and suitability of facilities. The centers selected were among those already established by the Department of Postgraduate Medical Education for the circuit course for physicians. These towns (Parsons, Emporia, Sabetha, Colby, Garden City, and Great Bend) are located in the rural sections of the state and have a population of less than 20,000.

The content for the circuit course was planned by faculty from the University of Kansas Department of Nursing Education and Nursing Service. The Kansas State Nurses' Association, the Kansas League for Nursing and the Voluntary Health Agencies in the state were apprised of the course being planned and gave their support for its implementation. When the content for the second sequence is planned, nurse representatives from the various health agencies will be represented. In this way we will endeavor to have more collaborative planning by health personnel. Because of the limited time period we had to plan the content and publicity for the program, it was impossible to involve them actively in the actual design of the initial offering. Faculty for the circuit course has been provided from the Department of Nursing Education and Nursing Service at the University of Kansas Medical Center as well as guest faculty from the community. Participants included nurses from a Catholic collegiate school of nursing and from a private protestant hospital.

The first session of the circuit course for nurses was held on December 11, 1967, in the eastern segment of the state. To our happy amazement, the program was over-subscribed necessitating a change in some of our plans. Advanced registration gave us some indication of the number of nurses who planned to attend enabling us to make some alterations for the presentation in Parsons. We were not so fortunate in Emporia as there were so many unexpected late registrants and walk-in enrollees that we were unable to accommodate the group in the scheduled Area Vocational-Technical School Auditorium. The nursing students who appeared were denied admission because of the overcrowded conditions. The location for the next session has been rescheduled and will accommodate a much larger number of nurses. We had anticipated perhaps 75 enrollees, but instead 204 nurses, plus additional nursing students, arrived.

In planning the circuit course we were cognizant of the numerous requests from nurses for programs to be brought from the University to the area of practice,

similar to that provided for the physicians; yet, we had not expected that so many nurses would actually participate. Since the initial presentations, we have learned that nursing service directors made it possible for some of their employees to attend the symposium in one location and on the following day arranged for others to attend the institute in another town. We had anticipated nurses who were within a one-hour commuting distance would attend the course, but were pleasantly surprised to find some commuted twice that distance. In January 1968, the first program in the western sector of the state was presented. The same kind of interest from the nurses in this region was evidenced. It is interesting to note that a number of inactive nurses were among those attending the symposium. Perhaps this will be an incentive for them to return to active practice.

Each participant attending the half-day program is asked, as a means of evaluating the program, to complete a questionnaire at the end of the session and return it to the field representative. The evaluations returned at the close of the first two sessions indicated 749 nurses felt our pragmatic approach to the content would be helpful and useful in their nursing practice. Their constructive criticism will be utilized in planning future programs. It is our intent that continuing education not be directed to the acquisition of knowledge for knowledge sake, but rather toward its applicability in the patient-care setting. Evaluation of the circuit course, independent of the questionnaire that the nurses have completed, will be made by the Kansas Regional Medical Program Division of Research and Evaluation.

The Kansas Health Facilities Information Service, Inc., has completed an extensive study identifying the nursing needs and resources in our state and has found the problem of inadequate nursing supply mounting. To ascertain the potential manpower of the 3,100 non-practicing nurses in Kansas, a survey was made to learn more about their interests and needs. The data is now in the process of being analyzed. This may be one reservoir through which the need for nurses not being met by the present nursing supply can be accomplished. Many nurses have been lost to nursing (some only temporarily) through marriage and homemaking. While they have been absent, nursing practice has continued to advance. Some graduates who have attempted to return to practice are simply overwhelmed by the new concepts and changes in nursing which shatter their self-confidence. Even though some non-practicing nurses have enrolled in refresher courses they frequently fear returning to active practice. The Kansas RMP will sponsor its first six-week clinical retraining course for nurses in February 1968. The course consisting of 180 hours (40 per cent didactic and 60 per cent clinical practice), is designed to stimulate self-confidence, update nursing skills and knowledge while giving care to patients with heart disease, cancer, stroke, diabetes, and related diseases. The course will be continued as long as a need exists. The offering complements refresher courses being coordinated by the Kansas State Nurses' Association.

Other continuing education programs need to be explored to assist practitioners in improving their nursing skills if patients are to receive not only adequate, but better, nursing care. Continuing education provides one avenue for upgrading and updating the practice in all health agencies. Both nursing education and nursing service personnel must work together in meeting this challenge and responsibility for improved care to patients. One worrisome fact is finding financial resources to underwrite the cost of these programs and provide sufficient faculty who can devote full time to developing continuing education for nurse practitioners.

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Lymphoma—Meningitis

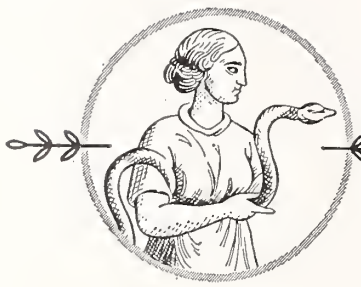
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Medical HISTORY

Logan Clendening—

The Anatomy of a Teacher

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THE STRUCTURE OF GENIUS will never be laid out by the neuroanatomist. By extension, postmortems such as this can never divine the elusive spark we recognize as genius in a teacher. But failure, too, can be instructive, and when a teaching genius—a Logan Clendening—appears for his always too brief tenure, those among us who profess to profess might profit merely from the attempt at laying out his pedagogical anatomy.

Some say the excellent teacher is born, not made. This is manifestly untrue, of course. But certainly some men are more nearly born teachers than others, and at least two elements contributing to his teaching effectiveness were God-given to Logan Clendening: a natural sense of the dramatic and a commanding personal appearance.

A former student summarized his memory of Clendening, the teacher, in succinct and revealing fashion, saying, "Most of all, he was an entertainer." Logan Clendening *was* an actor. In a sense his classes in physical diagnosis were one-act plays. The settings were carefully arranged by a resident, who then served as stage manager. The players, that is to say, the appropriate heart murmur or striking skin tumor, were selected meticulously. Often the characters were rehearsed, and bits of business concocted. The choreography was painstakingly practiced, as in Clendening's memorable imitation of the major pathological gaits. Then, with infallible timing, producer-director-star Clendening appeared on stage.

Nowhere was Clendening's dramatic talent more effective than in his use of the first minute. He knew that *getting* the student's attention was always easier than recovering it. On occasion he would enter the classroom firing a question at some startled soul on the front row. If the desired answer was not forthcoming immediately, he might stop short of the lectern and say,

"Gentlemen, when you decide to study for this course, I will be back!" Whereupon he would abandon the class for a day or more.

Again, he burlesqued the stethoscopic faddists of his day by entering the room with earpieces in place and the bell trailing at the end of several feet of hose in the hands of a resident.

This educational shock treatment is seen again on the occasion Clendening entered strangely subdued and deep in thought. He walked to the lectern, and stood, head down, for a long minute. Finally, looking up, he established eye contact, and suddenly sprayed the nearest rapt faces with a monumental Bronx cheer, and without a word left the room. According to one account, the following class session found the

"I want to live to see us so good that Johns Hopkins will become known as the Kansas University of the East!"
Logan Clendening

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front row empty except for a lone student decked out in full foul weather regalia. Inane? On the surface, perhaps. But who among us would have missed the next meeting?

Closely related to his mastery of the first minute was Clendening's calculated use of what may be called the *insult ploy*. This venerable comic standby was among Clendening's more effective devices, and many of the fonder recollections of his students revolve around such incidents.

On one occasion he arrived to greet the idealistic newcomers from the Lawrence campus,

"Gentlemen, welcome to Kansas City and your clinical years of medical instruction. As I look out over your intense and eager faces, a single thought keeps running through my mind—God help the Commonwealth of Kansas!"

This faculty with the directed insult was not a major part of Clendening's method, but he knew its value. He knew that the student, reeling under unexpected abuse, was set to remember forever Clendening's next words. And this held true whether the words were humorously insulting, or a mundane listing of the physical findings of mitral stenosis.

"It isn't enough to throw facts at medical students," Clendening once said. "You have to cover your facts with mud to make them stick." This reveals another of Clendening's teaching techniques, the *touch-of-mud* principle. The technique is subject to criticism by the orthodox and fastidious educator, but we may dismiss such objections here on grounds that we are discussing effective rather than orthodox education. The *touch-of-mud* principle is so in harmony with the man, Clendening, that there is little reason to doubt his faith in it. Why would *any* teacher, after all, prefer the soporific term "gonorrhea," when common usage provided him with such an arousing expression as *the clap?*

Similarly, when a student inquired after the contraceptive efficacy of the diaphragm, Clendening could not be content to simply dismiss the device as ineffective because of its inconvenience. How much more indelible to detail the experience of a recent patient's first encounter with the contraption, how the eager husband greased the thing and tried desperately to insert it, only to have it flip over on the dresser, or come to rest on his wife's great toe, and finally, "when most of the room was greasy and smelling of essence of rose, find that the bloom was gone and his own flower wilted."

The *touch-of-mud* is psychologically sound. It forms the essence of most memory improvement courses, wherein the student is taught to associate the object or event to be remembered with some bizarre and unrelated word or phrase. It is the method many of us found useful in memorizing the carpal bones—Never Lower Tillie's Pants, Mother Might Come Home. The method stands condemned by educators because it de-emphasizes reasoning in favor of memorization. But, with the wisdom of cornered animals, medical students cling to such devices. They know the faculty rarely examines for ability to reason, but almost always for retention of facts.

For his bizarre associations, Clendening chose the *touch-of-mud*. The technique was consonant with his sense of humor and his talents as a raconteur. In their recollections, a few of his former students criticized Clendening for his off-white humor. Significantly, however, these few critics, now after 20 years, uniformly recounted not only the anecdote, but the associated medical truths. Offended or not, they too had been taught.

Did Doctor Clendening destroy his student's respect for the long, white coat? On the contrary, he seems to have inspired in his charges a respect out of proportion to his teaching talents alone. His classes were unconventional but not undisciplined. When an occasional student, perhaps emboldened by Clendening's unpredictable behavior, attempted a caper of his own, Clendening could restore order with military ease.

On one occasion, as Clendening escorted an attractive, young, feminine, mitral flush into the arena, a wolf's whistle sounded from the rear of the rabble. Clendening's florid face deepened. Wordlessly he led the bewildered girl from the room. Returning, he delivered himself of a furious ethical tirade. He listed the particular fears of his young patient, then shifted to the dignity of the patient in general. He proceeded to vaporize any distinctions the class might have imagined between the feelings of clinic and private patients. He portrayed in detail the exaggerating effect that fear of illness lends to everything the physician says and does. Pausing only for a final, dessicating glare, he walked out on a wretched class in which even the innocent must have been wiser.

The modern educator, forced as he often is to the cultivation of mediocrity, might consider another of Clendening's traits. While intolerant of classroom anarchy, Clendening encouraged individuality. A case in point involved a reasonably brilliant student who found himself unable to muster any discernible respect for a certain instructor's fund of knowledge, teaching methods, or personality. The student embarked on that campaign of intellectual harassment known as roundsmanship, or spooking the chief. When the professor obviously neared his limit of knowledge on a given subject, the student prolonged the agony by posing question on question, all the while feigning utter innocence. The next day the student would prepare himself in depth on some obscure syndrome or biological mechanism, and then

contrive to direct the ward discussion to the topic, inquiring of the professor which of the then current schools of thought he subscribed to, and of course, why.

Further, the student signed his workups with a variety of illustrious signatures, William Harvey for a case of congestive heart failure, or William Beaumont for a peptic ulcer, and, by way of validating his conclusions, invariably called on the Archangel Gabriel as his witness. The student duly came to the attention of the Dean, and on the basis of an unfavorable recommendation, was denied a desirable internship. In desperation he approached Doctor Clendening. Satisfying himself that the matter was one of personalities, Clendening picked up the telephone and secured the student a choice California internship.

Logan Clendening knew his students were bound directly for the practice of medicine. Accordingly, he taught pragmatically. An occurrence early in his medical life was recounted to class after class, and seems to have cast his teaching in the mold of common sense. After his internship, Clendening accepted a *locum tenens*. Sitting in the inner office the first day he heard patient after patient excuse himself and depart upon learning that the "regular" doctor was out of town. And, all of this in spite of the receptionist's increasingly imaginative sales talk in Clendening's behalf. Finally, assured that the young doctor was fresh from the University and absolutely plethoric with the latest scientific medicine, a middle-aged lady allowed herself to be pushed into the office.

"Doctor, I'm glad to hear you have all the latest. I've been to twenty doctors and they all tell me I'm a hopeless case."

Clendening's mind began ticking off the esoteric diseases wherein the management might be expected to confound 20 of his more experienced colleagues.

"And just what is this condition from which you suffer, Madam?"

"I've tried everything—been everywhere. Do you really think you can help?"

"I assure you I will try. But I must know what the condition is."

"Well, Doctor," and she began removing a shoe, "what do you have that's new for sweaty feet?"

As Clendening explained later he didn't know at the time if there was anything *new or old* for sweaty feet, or, for that matter, that human begins consulted physicians because their feet perspired. This embarrassment, trival on the surface, appears to have directed his teaching emphasis toward the commonplace in medicine. Speculative educational philosophy might have a place as acceptable conversation over a leisurely bourbon in the evening, but today is now! class is in session, and time is precious. In a year his students would be standing alone at the bedside. They needed confidence. They needed a set of factual tools with which to care for sick human beings until experience provided them the means for separating the useful from the decorative in medicine.

Without a thorough knowledge of his subject, a man may gain, but never sustain, the appellation of professor. His many natural attributes notwithstanding, the heart of Logan Clendening's teaching effectiveness was knowledge of his subject. He knew therapeutics and physical diagnosis in exhaustive detail. During his career he wrote textbooks in each. There can be no more trying test of a man's grasp of a body of knowledge than his willingness to put it down on paper under the presumptuous heading of "textbook" for the scrutiny of irreverent and occasionally uncharitable colleagues. Clendening's books, now factually outdated, remain as proof that textbooks are not inherently tedious.

The testimonies of his former students produce one inescapable truth about Clendening, the teacher. He was great because he was Clendening. He would have profited little from an integrated curriculum. He was effective without closed-circuit television and stereoscopic Kodachromes. A corollary thought gives greater pause—mightn't he have been hampered by such devices?

Today, academic laurels are most readily won by research accomplishments. When hiring a new professor, or promoting an older one, universities pay little more than lip service to teaching ability. In part this is because it is easier to assess publications (or weigh them, as the cynics would have it) than to guage classroom effectiveness. But this actually applies only to the *average* professor. Students soon recognize the exceptional teacher, whether he be exceptionally tedious or truly inspirational.

The fact is that for a variety of reasons, medical educators value laboratory expertise higher than teaching ability. Some even maintain that the modern academician should be equally competent in the classroom, the laboratory, and at the bedside. But, says Corinthians, "Every man hath his proper gift of God, one after this manner, and another after that." Nature produces many talented men for each genius.

There is evidence, faint but heartening, that the wild pendular swing to emphasis on research is beginning to return to a more balanced position. A study of the anatomy of teacher Clendening argues that medical schools might reasonably employ a certain professorial cadre having no appreciation of administration, no knack for research, perhaps not even the patience for proper patient care—men whose

(Continued on page 160)

The President's Message



DEAR DOCTOR:

Examination of past issues of the JOURNAL shows that for some years the March President's Page has been devoted exclusively to medical legislative problems, either at the state or national level.

Perhaps we are fortunate this year that most legislators are so busy deciding to run, or not to run, and in which direction, that controversial issues are being handled cautiously.

Since there is this atmosphere of caution, I shall be discreet and say nothing.

Sincerely,

President



Trip Insurance for Society Members

Beginning on February 1, 1968, the Kansas Medical Society is providing a new service to its members. Every doctor who is requested by the Kansas Medical Society to participate in a business meeting is now insured by the Society in the amount of $50,000 against accidental death during his traveling to and from such a meeting. This includes all meetings called by committee chairmen, Council meetings called by the president, and business sessions of the House of Delegates. It will include doctors, although not members of the committee, who are requested to appear before the committee for specific purposes.

The physician will be covered for travel exposure in a reasonably direct route from his home or office to the meeting place and his return. Each doctor so covered will name the beneficiary of his choice and will select immediate payment of the principal sum, or in monthly payments over a three-year, five-year, or ten-year period. This policy is written with the Insurance Company of North America through a Topeka agent. Premiums are paid by the Kansas Medical Society.

There are certain exclusions. Covered will be those doctors only who are under 70 years of age. Excluded from coverage is a physician piloting his own airplane. He may be covered in his airplane if he is carried as a passenger and the plane in flown by a licensed pilot other than himself. Excluded also under this coverage is the physician's travel exposure during side trips made in connection with his travel to or from a meeting.

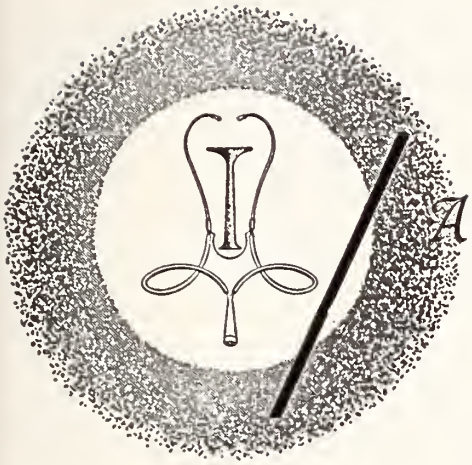
This policy covers those members who have a direct responsibility with reference to an individual meeting. Not covered are doctors, even though they may have received an invitation, who attend as spectators.

Refractions Under Title XIX

An error occurred in the editorial comment of January 1968 in which the new social security amendments were discussed. In one sentence mention was made of Title XIX where Title XVIII was intended. Unfortunately, this mistake produced a significant error in fact.

The third paragraph of the January editorial says, "The definition of blindness is changed to that of industrial blindness (central visual acuity of 20/200 or less). The prescribing, fitting or changing of eyeglasses or examinations to determine the refractive state of the eyes are excluded for payment under Title XIX." In this instance the figure should be **XVIII.** It is true that refractions and prescriptions for eyeglasses are specifically excluded under Title XVIII. However, recipients under Title XIX in Kansas are eligible for complete eye care including refractions and the cost of glasses.

Repeating once again in an effort to correct an unfortunate error, the paragraph referred to is correct as applied to Title XVIII. Title XIX provides total eye services.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the **Doctor's Calendar.** ***Notice of the session is posted in advance to allow the physician time to make preparations.***

MARCH

Mar. 22-23 **20th Annual Midwest Cancer Conference, Kansas Division, American Cancer Society, Broadview Hotel, Wichita.**

Mar. 22-23 Congress on Socio-Economics of Health Care, sponsored by the Council on Medical Service and Division on Socio-Economic Activities of the AMA. Palmer House, Chicago.

APRIL

Apr. 1 **AMA lecture on Clinical Nutrition by Jack Metcoff, M.D., Kansas State University, Manhattan.**

Apr. 6 Spring Professional Program on Detection of Cancer, Ellis Fischel State Cancer Hospital and Cancer Research Center, Columbia, Missouri. AAGP accredited. Write: Galen B. Cook, M.D., Cancer Research Center, 40 Hwy. & Garth, Columbia 65201.

Apr. 22-24 American Association of Thoracic Surgery, Pittsburgh-Hilton Hotel, Pittsburgh. Write: Thomas B. Ferguson, M.D., 7710 Carondelet Avenue, St. Louis 63105.

Apr. 22-25 Southwestern Surgical Congress, Brown Palace Hotel, Denver. Write: Jack A. Barney, M.D., Southwestern Surgical Congress, 301 Pasteur Building, Oklahoma City 73103.

Apr. 26-27 Kansas Society of Radiologic Technologists, Glenwood Manor, Overland Park, Kansas. Write: Donald L. Blancett, R.T., Providence Hospital, Kansas City, Kansas 66102.

Apr. 28-May 1 **Kansas Medical Society, Ramada Inn, Topeka**

Apr. 30-May 3 American College Health Association, Leamington Hotel, Minneapolis. Write: Lee D. Stauffer, Box 9117, Coral Gables, Florida 33124.

MAY

May 3-4 Cardiac Symposium sponsored by the Missouri Heart Association, Plaza Inn, Kansas City, Missouri. AAGP accredited. Write: Matthew Costello, Exec. Dir., Kansas City Heart Association, 3600 Broadway—No. 19 Upper Mall, Kansas City, Missouri 64111.

May 16 19th annual Dr. F. G. Thompson, Sr., Lectureship, Thompson, Brumm & Knepper Clinic, 902 Edmond, St. Joseph, Missouri. The lecture will be given at 8:15 p.m. by R. Drew Miller, M.D., Mayo Graduate School of Medicine.

May 19-20 Symposium on Dextrans, *Current Concepts of the Basic Actions of Dextrans and Their Clinical Application in Cardiovascular and Related Fields,* Flagship Hotel, Galveston Island, Texas. Write: Texas Heart Association, P.O. Box 25041, Houston 77005.

POSTGRADUATE COURSES

University of Kansas:

Mar. 18-20 ***Otorhinolaryngology***

Mar. 25-27 ***Surgery***

Apr. 15-17 *Anesthesiology*

Apr. 19 *Infectious Diseases*

Apr. 22-24 *Ophthalmology*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, 39th and Rainbow Boulevard, Kansas City, Kansas 66103.

University of Colorado:

Apr. 15-19 *High Risk Infant Care (limited)*

Apr. 17-19 *Respiratory Insufficiency*

Apr. 25-27 *Clinical Dermatology (limited)*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver 80220.

University of Nebraska:

Apr. 8-9 *Practical Psychotherapy in the G.P.'s Office*

Apr. 18-19 *Coronary Care Units in Community Hospitals*

For further information write the Department for Continuing Education, University of Nebraska College of Medicine, Omaha.

Apr. 17-20 12th annual postgraduate course on *Fractures and Other Trauma,* Chicago Committee on Trauma of the American College of Surgeons, John B. Murphy Memorial Auditorium, Chicago. Write: James P. Ahstrom, Jr., M.D., 55 East Erie Street, Chicago 60611.

Apr. 11-13 *Correlations in Medicine: The Clinical and the Laboratory,* sponsored by the Mound Park Hospital Foundation, Inc. Fee $40; 18 hours accredited by AAGP. Write: Correlations in Medicine, Mound Park Hospital Foundation, Inc., 701 Sixth St., South, St. Petersburg, Florida 33701.

Logan Clendening

(Continued from page 156)

anatomy dictates one principal function—the inspired instruction of students in the health sciences.

NOTE: Logan Clendening was legendary material. The anecdotes related above came from his former students, almost 100 of whom (representing 22 states) responded to a letter requesting reminiscences. While most of the anecdotes were related independently by two or more respondents, obviously the absolute authenticity of none can be guaranteed by the author. They were selected only to characterize aspects of Clendening's teaching philosophy, and with no pretext of biographical precision.

Nominating Committee

The Nominating Committee met on Saturday, February 3, 1968, and submits to the House of Delegates the following list of nominations for the elective offices of this Society. Wherever more than one nomination appears these are presented in alphabetical order. A very brief biography accompanies each name.

President-Elect

Leland N. Speer, M.D., Kansas City. Born in 1912. Graduated from the University of Kansas School of Medicine in 1936. This year served as First Vice President.

First Vice President

Francis T. Collins, M.D., Topeka. Born in 1914. Graduated from the University of Kansas School of Medicine in 1943. This year served as Constitutional Secretary for the Society.

E. Burke Scagnelli, M.D., Dodge City. Born in 1918. Graduated from the Loyola University School of Medicine in 1943. Was president of Kansas Blue Shield.

Alex Scott, M.D., Junction City. Born in 1923. Graduated from the University of Wisconsin School of Medicine in 1948. Is currently serving as Councilor for District 5.

Second Vice President

Kenneth L. Graham, M.D., Leavenworth. Born in 1921. Graduated from the Ohio State University School of Medicine in 1945. This year served as chairman of the Commission on Socio-Economic Study.

Carl C. Gunter, M.D., Quinter. Born in 1920. Graduated from the University of Kansas School of Medicine in 1951. Is currently serving on the Executive Committee of Kansas Blue Shield.

William J. Reals, M.D., Wichita. Born in 1920. Graduated from Creighton University School of Medicine in 1945. Now serving as Alternate AMA Delegate.

Constitutional Secretary

Harvey L. Bogan, M.D., Baxter Springs. Born in 1910. Graduated from the University of Kansas School of Medicine in 1942. Is presently serving as member of the Board of Health.

Emerson D. Yoder, M.D., Denton. Born in 1914. Graduated from the University of Kansas School of Medicine in 1949. Was recently Councilor for District 1.

Treasurer

Virgil E. Brown, M.D., Sabetha. Born in 1906. Graduated from the University of Kansas School of Medicine in 1937. Is presently serving as Councilor of District 1.

Chester M. Lessenden, Jr., M.D., Topeka. Born in 1918. Graduated from the University of Kansas School of Medicine in 1943. Has served on the Executive Committee of Kansas Blue Shield.

AMA Delegate

Lucien R. Pyle, M.D., Topeka. Born in 1901. Graduated from Rush Medical College in 1928. Has been president of the Kansas Medical Society. Is presently serving as AMA Delegate.

Alternate AMA Delegate

J. Warren Manley, M.D., Kansas City. Born in 1907. Graduated from the University of Kansas School of Medicine in 1940. Has served as Councilor. Is currently serving as Alternate AMA Delegate.

Obituaries

FRED J. GASSER, M.D.

Dr. Fred Gasser, Cherryvale physician since 1919, died on January 18, 1968, at Mercy Hospital, Independence, Kansas. He was 76 years old.

Dr. Gasser was born October 26, 1891, at Pierce City, Missouri. He was graduated from the St. Louis University School of Medicine in 1917, and began his medical practice in Cherryvale in 1919. He was a veteran of World War I and a retired lieutenant colonel in the Army Medical Corps.

Survivors include his wife, two daughters and a son.

OLIVER W. MINER, M.D.

Dr. Oliver W. Miner, 73, died at St. Catherine Hospital, Garden City, on Januray 9, 1968.

He was born in Garden City on June 12, 1894, and received his doctor of medicine degree from the University of Kansas School of Medicine in 1918. He served in World War I as a senior lieutenant in the medical corps. He returned to Garden City in 1924 and practiced there until his retirement in 1960.

Dr. Minor is survived by three daughters.

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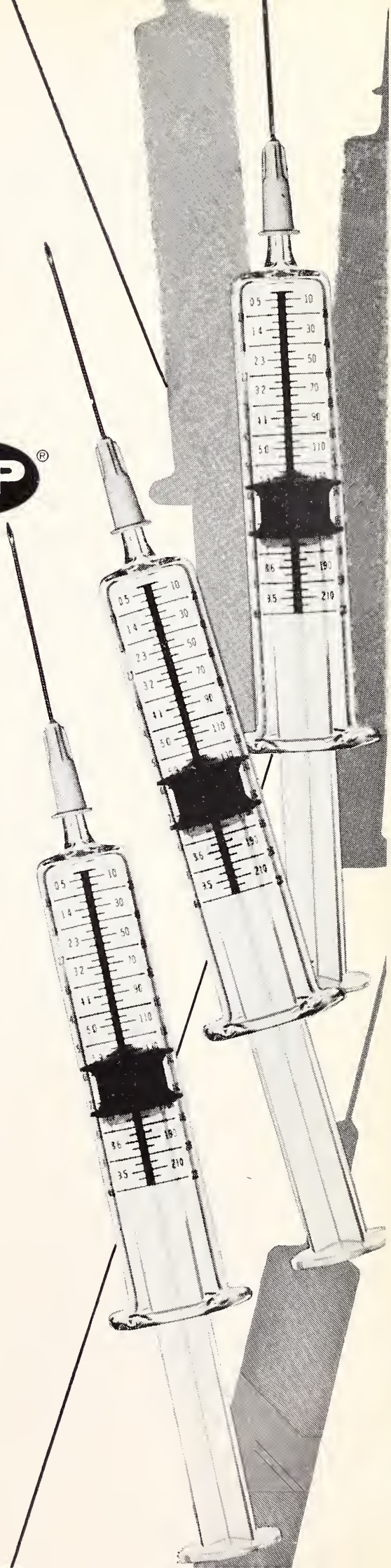


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Volume LXIX, Number 4—April, 1968

The JOURNAL of the KANSAS MEDICAL SOCIETY

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Editor: Orville R. Clark, M.D., Topeka.

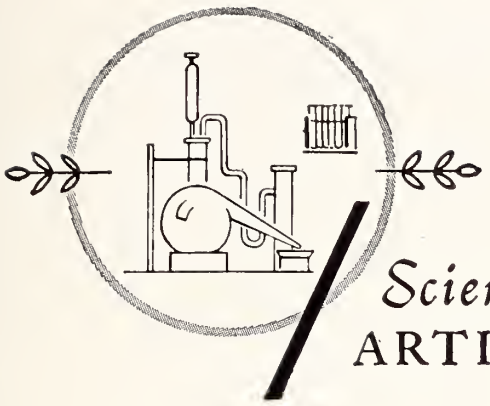
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Scientific
ARTICLES

A Brief Cool Summer

—*Near the Equator: Medical Interests in Colombia, S. A.*

J. K. FRENKEL, M.D.,* ***Kansas City, Kansas***

THE PROSPECT OF SPENDING a summer in Colombia drew jealous smirks or feigned compassion, depending on whether the image invoked was teaching coeds at Stevens College, in Columbia, Missouri, or sweltering equatorial swamps. So I explained many times that Medellin, in Colombia, South America, was almost 5,000 feet high, had a climate of eternal spring, and that the coeds would be close at hand. My wife Becky, our two daughters, and small son came along. While the children, much to their chagrin, attended summer school, my wife was visiting with the *Ciudadanas Colombianas,* equivalent to our League of Women Voters.

While an exchange professor at the University of Antioquia Medical School I wanted to learn as much as possible about the country, its medical-social problems, and the impact of the medical school on education. Also I wanted to collect sera and other research and teaching material. During my stay I participated in nine round table conferences at the medical school, and gave 15 talks and seminars, of which seven were at the medical schools in Cali and Cartagena. Apart from Medellin and adjacent rural areas in the state of Antioquia, I visited Cartagena, Turbo and Rio Leon in the north; Bucaramanga, Bogota, and Villavicencio in the east; and Cali in the south-central area. My trip was part of an exchange towards the development of competence in medical and educational problems of other countries. This ongoing program of the University of Kansas is financed by a grant from the Ford Foundation.

Two medical students from Kansas also participated in the exchange. David Thompson (between his second and third year) collected most of the 400 sera and saw pediatric and medical patients. John Schwartz (between his first and second year) studied the compulsory rural medical year by means of a questionnaire and interviews. Both students became acquainted with a significant fraction of the student body of the medical school. They also conducted English classes for medical students and staff interested in visiting Kansas.

Although twelve weeks is little time to gain a broad or deep understanding of Colombia, even with a knowledge of Spanish, it is longer than tourists have, most of whom are dependent on selected information from bilingual interpreters of the local scene. The following observations of possible interest to *Norte Americanos* are sometimes accompanied by commentary and speculations. Unless specified as unique to Colombia, many of these observations apply similarly to other parts of the world. Some of the solutions in progress are unique to Colombia, and deserve considerations elsewhere. As several good recent general studies of Colombia and South America exist[1-5] I wish to comment here mainly on problems related to health and disease.

*From the Department of Pathology and Oncology, University of Kansas Medical Center.



Figure 1. Physical map of Colombia.

Geography and Climate

Colombia extends over 440,000 square miles, an eighth of the size of the United States *(Figure 1)*.[6] Three mountain ranges extending north to south separate the country into four regions: the Pacific coast, the Cauca Valley, the Magdelena Valley and the Eastern *llanos* (prairies). Most of the people live in the high plateaus and the mountains. Historically they chose these areas to escape malaria, which once more than offset any nutritional advantage that the fertile lowlands could have afforded. Even though the area is only six degrees north of the equator, the mountains, frequent cloud cover, and rains make for a tolerable to pleasant climate. The proximity of the equator limits seasonal temperature variations so that mean annual temperature data are informative *(Table 1)*. The valleys, seacoasts and *llanos* are hot (80° F.), elevations of 3,000 feet are warm; elevations of 4,500 feet are "eternal spring," and elevations of 8,000 feet are cool.[7] The main peaks are between 12,000 and 17,000 feet and several are snow covered.

There are 18 million inhabitants, with an annual increase of 3.2 per cent and a national product of $300 per capita *(Table 2)*.

The geography presents formidable barriers to travel. Before modern means of travel, two weeks were required by horse from Bogota to Medellin. Now it takes 14 hours by car, and less than an hour by plane. Jet travel consists mainly of take-off and landing patterns, although to cross swiftly over the Magdelena Valley, the Central mountain range, and to descend into Medellin's Abura Valley is a breathtakingly beautiful geography lesson. Rail connections to Bogota are as yet incomplete. The highway to the seaport Baranquilla is passable about half of the week, with repairs made and new sections built the other half.

Rainfall[3] is a problem as geography *(Table 1)*. The land floods. Rail lines wash out. Landslides close roads. The terms "summer" and "winter" are used to indicate sunshine and rainy weather; seasons in the temperate sense are absent.

Medellin is a city of 800,000, a manufacturing and commercial center, and the center of the cattle industry. It is easy for a Kansas Citian to feel at home. There was only one confusing problem, the more so as it is not specifically mentioned in descrip-

TABLE 1

REPRESENTATIVE TEMPERATURE AND RAINFALL IN COLOMBIA

Area	*City or Town*	*Alt. (feet)*[7]	*Mean Annual Temp. in F.*[7]	*Rainfall (inches)*[3]
West Coast	Quibdo	70	79	440 (11 meters)
	Buenaventura	30	79	155
Eastern Llanos (Prairies)	Villavicencio	1,500	78	170
Central Mountains	Popayan	5,000	65	75
	Medellin	4,500	68	58
	Bogota	8,000	58	43
Central Valleys	Cali	3,000	73	
Caribbean Coast	Cartagena	10	80	34
	Santa Marta	12	82	15

TABLE 2

COMPARATIVE POPULATION AND INCOME DATA OF COLUMBIA AND SELECTED OTHER AMERICAN COUNTRIES

	Size[6] *(Sq Km)*	*Million*[6] *Inhabitants 1965*	*Annual Rate*[6] *of Population Growth Per Cent*	*Infant*[6] *Mortality Per 1,000*	*National*[6] *Product Per Capita 1963 U. S. $*	*Income Per Capita*[8] *(1964)**
Colombia	1,130,000	18.0	3.2	83.9	280	197
Venezuela	910,000	8.7	3.4	60-75	728	699
Peru	1,280,000	11.7	2.8	95-105	262	186
Brazil	8,510,000	81.3	3.4	?	196	(200)
Mexico	1,970,000	40.9	3.2	66.3	402	410
Uruguay	180,000	2.7	1.2	75-85	478	455
USA	9,360,000	195	1.6	24	3083	2707

* From page 4, Table 4.[8]

tions of the country. Special stamps are needed for air mail, and they are sold at the airline offices, not the post office.

The Impact of Poverty on Health

Contrary to U. S. medical experience, the major diseases are infections and malnutrition *(Table 3)*. Infections and infestations are so common, that no separate infectious disease sections exist in hospitals. Infectious disease is more diversified than in the U. S., and includes malaria, typhoid, smallpox, leishmaniasis, Chagas disease, pinta, rickettsioses, bartonellosis, and occasionally yellow fever.[6] Most of the ten leading causes of death in Colombia relate to infection whereas in the United States there are only two *(Table 4)*.[8]

Important differences exist in the frequency of disease, and death from infant diarrhea, tuberculosis, tetanus, measles and malaria *(Table 4)*.

Not apparent is the percentage of the population, especially children, affected by the triad of malnutrition, intestinal parasitism (nematode and amebic), and anemia. In children this results in (1) decreased physical growth and later in suboptimal stature, (2) decreased learning and stunted mental and intellectual growth,[9] and (3) probably increased susceptibility to infection. In adults the triad causes (4) suboptimal productivity and income and (5) perpetuation of the marginal family and social structure.

As the food available to each child is inversely proportionate to the number of children, family planning assumes an important role in the prevention of individual malnutrition.

The causes of *urban poverty* have been analyzed in 83 families studied in Medellin.[10] Although social terminology is used, the causes that can be influenced medically will be apparent *(Table 5)*.

Rural poverty has even more complex roots and consequences. To quote from a narrative characterization:

"Our peasants live in small houses without water, without sanitary facilities, with the woman pregnant

TABLE 3

LIST OF DIAGNOSES MADE DURING TWO CLINIC DAYS IN THE PUESTO (UNIDAD) DE SALUD OF BARBOSA, ANTIOQUIA, A SMALL RURAL COMMUNITY ONE HOUR FROM MEDELLIN

Important Infections Components—28	*Non-infectious Diseases—18*
4 Malnutrition, advanced	7 Normals
3 Parasitosis	2 Hypertension
3 Anemia	Gastritis, neurosis
2 Dental abscess	Lumbar pain
2 Pertussis	Urethral diverticula
2 Enteritis	Unknown
2 Bronchopneumonia	Pseudocyesis
2 Rhinitis and bronchitis	Threatened abortion
Amebiasis	Cholelithiasis
Cystitis	Menopausal complaints
Syphilis	Peptic ulcer
Cold	
Pharyngeal abscess	
Hookworm	
Furunculosis	
Measles	

TABLE 4

MORTALITY RATES FOR CERTAIN DISEASES (PER 100,000) SHOWING SIMILARITIES AND DIFFERENCES BETWEEN COLOMBIA AND THE U. S.*

	Colombia 1964	*U. S. A.* 1964	*Highest in the Americas* (No figures for Haiti)
	Higher in Colombia		
All deaths (adjusted)	1,003 (1,070)	940 (560)	
Tuberculosis	22	4.3	Peru 66
Typhoid	3.0	0.0	Nicaragua 4.9
Dysentery (all)	5.3	0.1	Venezuela 11.5
Diphtheria	1.6	0.0	El Salvador 2.3
Whooping cough	15.8	0.0	Ecuador 64
Tetanus	11.8	0.1	Ecuador 35
Measles	10.1	0.2	Ecuador 42
Rickettsial diseases	3.4	0.0	Colombia
Malaria	6.3	0.0	Nicaragua 24
Other infect. and parasit. diseases	24.4	2.9	
Avitaminosis and other defic. dis.	24	0.8	Dominican Republic 167
Anemia	18	1.8	Guatemala 42
Influenza	8.4	0.9	Guatemala 116
Gastroenteritis	105	4.3	Guatemala 229
Maternal death/1,000 live births	2.6	0.3	Chile 2.9
Complications of pregnancy	9.8	0.7	Paraguay 12.1, Granada 15.2
Disease of newborn	111	32	Guatemala 190
Senility and unknown	142	13	Honduras 458
Homicide and civil war deaths	25	5.1	El Salvador 32
	Similar rates		
Syphilis	1.1	1.4	Jamaica 5.8
Meningococcal disease	0.1	0.4	Dominican Republic 7.9
Duodenal ulcer	5.6	5.7	Jamaica 6.0
Congenital malformation	8.6	10.6	Virgin Islands 23
Accidents (other than automobile)	32	30	
	Higher in U. S.		
Malignant tumors	50	151	Uruguay 181
Diabetes	5	17	Jamaica 21, Barbados 33
Stroke	30	104	Montserrat 270
Rheumatic heart disease	3.0	8.1	Antigua 11.3
Coronary heart disease	28	313	U. S. A.
Hypertension	7.3	30	Virgin Islands 63
Cirrhosis	4.5	12	Chile 37
Automobile accidents	12	25	Virgin Islands 35
Suicide	4.8	11	U. S. A.

* From Table H. p. 29-32.[8]

and many children. They do not eat well because they do not have enough milk or other appropriate proteins that would assure normal growth and development of their children. The children are therefore dirty, filled with parasites, sick and hopeless; the mother is malnourished, overworked, tired and resigned to her destiny; the father works hard when he finds a regular job, but many months of the year, especially in our coffee areas, he has no work. He is uneducated, fatalistic, restless and anguished. . . ."[11]

The civil war between 1945 and 1960 caused much dislocation, and loss of life, and created orphans, prostitutes and widows. Homeless boys, sleeping in

TABLE 5

CAUSES OF POVERTY IN MEDELLIN[10]

		Per Cent
Total number of families studied	83	
Poor (less than 100 pesos—6 dollars monthly income)	61	
Social causes		
Breadwinners had inadequate or no schooling	21	34
Out of work, poor job	9	15
Subtotal	30	49
Cultural causes		
Excess of children or of other nonproductive family members	13	21
Personal causes		
No father	8	13
No mother	4	7
Subtotal	12	20
Economic causes		
Low salary (with small family and ability to work)	2	3.5
Combination of Factors	4	6.5
Total	61	100

the street are a common sight in Bogota.

In many parts of the country the caloric intake averages 1,500 per adult, instead of 2,300, with half the required amount of protein, and less than one-quarter of the required animal protein. When surveyed in 1960, vitamin deficiency was found in most, and goiter in many workers and soldiers from the lower economic groups.[12] Up to 90 per cent of the lower income groups are afflicted with intestinal parasites.[26] Up to ten species have been found in some patients. This is, of course, not unique to Colombia, but prevalent in the rural areas of many underdeveloped countries. A direct relationship between capacity to command a salary level and the percentage of intestinal parasitism has been found[11] even in city dwellers, many of whom have no adequate sanitary facilities when living in the shanty town suburbs *(tugurios) (Tables 6 and 7)*.

TABLE 6

RELATIONSHIP OF INTESTINAL PARASITISM AND SALARY LEVEL*

Monthly Salary Level	*Per Cent of Intestinal Parasitism*
60-240 pesos (10-40 dollars)	73
241-540	65
541-1,080	55
More than 1,080	12

* From Table 79.[26]

The nutritional inadequacy in a tropical country may surprise some of us who think of the lush green vegetation and the availability of food, such as oranges and bananas which we use as supplements. Apart from the inadequacy in essential amino acids, of a calorically limited plant diet, the following factors work towards nutritional inadequacy:

1. Unavailability of land—40 per cent of land is owned by 4 per cent of the people and the Catholic church. There is inadequate income from seasonal labor, business or industry, which may be undeveloped locally.
2. Feudal system—the owner who often lives in town distributes small parcels of land to *campesinos* (small farmers or ranch workers). Although they may retain half of the yield for themselves, this is often insufficient for his family.
3. Insufficient crop variety, or crop failure—*campesino* produces an insufficient variety of protein sources, usually because of lack of knowledge.
4. Insufficient money income—from yield of his excess crop, if any, or from the working on the owner's land parcel; generally work on the latter is limited to three days weekly, so that the *campesino* receives a daily wage. If he worked more than three days the salary would be computed on a monthly basis, with Sundays and holidays being paid. The *campesino's* isolation, his lack of information, resources or reserves, cause him to plant the traditional crops, instead of the more lucrative ones, some of which the land owner can turn into a good financial income.

TABLE 7

AVAILABILITY OF WATER AND SEWAGE SERVICE IN URBAN AND RURAL AREAS OF COLOMBIA, 1965[13]

Water supply—Per Cent	*Urban*	*Rural*	*Total*
Inside house	69	16	44
Outside house	20	30	25
No service	10	54	31
No information	< 1	< 1	< 1
Sewage system			
Toilet	72	7	42
Latrine	14	16	15
No service	14	76	43
No information	< 1	< 1	< 1

5. Poor marketing, transportation, refrigeration facilities—there is a virtual absence of cooperatives, as the middleman reinforces the individualistic and distrustful attitude of the *campesinos*.
6. Custom and superstition in food habits—like not eating seafood even when available, or giving children corn to eat instead of protein-rich beans.
7. Insufficient education about food needs, food values and supplementary food sources—for example, radio is not used for health education.

Throughout Colombia one commonly sees infants and children with protruding abdomens. In the local hospitals one finds the advanced stages of multiple nutritional deficiency with edema, dermatitis, anemia, mental dullness or sadness, thin flaxen hair, and often diarrhea and pneumonia. Measles often precipitates this state. Many children who are cured after two months on hospital food, return with the same Kwashiorkor-like picture after three to four months on a home diet.

Intestinal parasitism results in poor food utilization, and in excessive protein loss. The relevant factors can be summarized as follows:

1. Widespread fecalism in rural areas:
   —privies are absent, or
   —they are not used even if supplied.
2. Survival of hook worm larvae, of *Ascaris* and *Trichiuris* eggs, and of amebic and Giardia cysts in the moist, shaded soil of coffee and banana plantations, tree groves, and along river borders.
3. Frequent contact with soil:
   —people walking barefoot out of habit or need, this facilitates the penetration of hookworm larvae; half of the simple houses have dirt floors.[11]
   —people frequently ingest contaminated soil or water; handwashing prior to eating is not common, and safe water, or soap to wash hands, may be unavailable.[26]
   —the incidence of amebic and hookworm infection was inversely related to the frequency of handwashing and the wearing of shoes.[26]
4. Intestinal hypermotility, and the enzymatic defects in the parasitized intestine make absorption less effective.
5. Blood loss from ingestion by hookworm (hemoglobin values of 3 grams are not rare in endemic areas).
6. Protein loss from amebic, helminthic or bacterial ulcerations.

Well-nourished individuals can compensate for the protein loss, and parasitism is rarely a problem *(Table 6)*. People who can buy food usually lead a more hygienic life; there is less re-infection, worm loads are lower, or may be eliminated.

How Is Medical Care Given?

The private physician-patient relationship as we know it here, is found in Colombia mainly in the large cities, due to the size of middle and upper class population required to finance it. This private sector consists of 15 per cent of the population.[13] In the cities and larger towns, business and industrial wage-earners (some 5 per cent of the population) are covered by social security and hospitals. Eighty per cent of medical care is given by a combination of local-state-federal health services under the Ministry of Public Health's Division of Medical Care. The latter collaborates with the Association of Medical Schools and with individual schools where present. The budget comes from taxes, public lottery, and from fees for service (graduated scale). Out-patient departments and hospitals exist in towns. The rural areas are supplied by a system of health units, manned by salaried physicians, or by recent graduates in their rural year, one or two nurses' aides, and a health inspector. "Health promoters," girls with two to three months public health training, live in some villages that do not have health units.

Colombia has seven medical schools which graduated 391 physicians in 1964. There are 7,500 physicians in Colombia, or one per 2,250 people (U. S. 1:650).[8] The physicians are unequally distributed, in big cities the ratio is 1:700-900, but the average for the rural half of the country is 1:6384.[13] This physician deficiency in a mountainous country with an underdeveloped road system is especially serious. Hence it was decided to study the motivation of physicians to practice in the country, by means of questionnaires and interviews. Dr. Tom Bauer,[14] then a fourth-year medical student, studied the effect of origin and schooling, and John Schwartz[15] the effects of the compulsory rural year on this motivation. Their findings are being prepared for publication. From preliminary results of their surveys presented at the La Ceja conference on medical education in December 1967, is is clear that about 80 per cent of recent graduates intend to practice in the city, and only 20 per cent in the country.

The Supply of Rural Physicians

To provide better health facilities away from the cities, many Latin American countries have a federal law prescribing a compulsory year of rural practice for physicians who have just finished the internship. In Colombia the program is administered by state and local governments. Mayors of towns between 5,000-20,000 make contracts with the government to have a physician assigned. Salaries are paid by federal and state government while the town contributes an office and services. Salaries vary slightly to compensate for

local facilities, climate and distance from the cities. The graduating students choose sites, and those with the better grades have first choice.

A health unit may consist of an examining room, an office and a drug room. It may also have a laboratory with centrifuge and microscope, living quarters for a nurse's aide, storage rooms and a record room. In the larger towns several physicians, nurses' aides and health inspectors may be present, and the health center may be associated with a hospital. The physician is on call at all times, and sees all the patients who come, but usually considers himself part-time, since he also has a private practice. *Table 3* indicates the distribution of medical problems of Barbosa, an economically slightly better than average town at 4,500 feet altitude, an hour's drive down stream from Medellin. At lower altitudes one may encounter much malaria, and in the predominantly coffee areas, more malnutrition. The area that each health unit serves extends far up and down country roads, and across country reached only by horseback. The trained "health promoters" in smaller villages may help with normal deliveries, take care of the rehydration of babies with diarrhea, serve as spark plugs to improve environmental health and nutrition, and get people to go to the health unit. The physician and nurse visit the village about once a month. In larger health centers where the team includes a dentist, a graduate nurse and a "promoter of community action," weekly trips are planned to the countryside for talks and advice.

Health center rates are 1 peso (= 6¢ U. S.) per clinic visit, 40 pesos per hospital stay, 30 pesos for antenatal care and delivery, 50 pesos for a delivery without previous supervision. A symbolic 1 peso is charge made for each CARE package. In Barbosa *(Table 3)*, 240 families receive one CARE package weekly, for which the Colombian government pays transportation. Contrary to pharmacies in general, drugs are dispensed in the health unit pharmacies only on prescription. Generic drugs, many of which are supplied by McKesson Laboratories, are of high quality and inexpensive. The following are the per unit costs of representative drugs (in U. S. currency): chloramphenicol, 250 mg capsule 2.25¢; para-aminosalicylic acid, 500 mg tablet 0.93¢; I.N.H., 100 mg tablet 0.5¢; chloroquine, 250 mg tablet 1.6¢; prednisone, 5 mg tablet 1.7¢; penicillin-K, 1 million units ampule 11.2¢; chlorpheniramide maleate, 4 mg tablet 0.7¢; and one "prenatal" multivitamin tablet 1¢. A month's supply of contraceptive pills is between 60¢ and $1.20. This is reduced sometimes to 36¢ by subsidy.

How does the system work? It appears to fill much of the need of people in the towns where the units exist. However, in out-lying districts medical attention may be effectively non-existent. There were only 540 health centers (permanent physician) and 490 health posts (visiting physician and permanent nurse's aide) serving that half of the population living in the country.[13, 16] Although 10.3 per cent of a recent Colombian budget went into the public health effort directly benefiting 80 per cent of the population, this is low compared to a mean of 14 per cent for 12 Latin American countries.[8] The Colombian expenditures *per capita* were equivalent to only $2.38, compared to a mean of $10.00 for 15 Latin American countries, and $40.00 in the U. S. A.[8] The *per capita* expenditure for the 5 per cent under social security is ten times as great as for 80 per cent of the population covered by the general system. Of the latter group, those living in the rural areas are the least well supplied. Farmers, day laborers, and Indians have the highest rates of parasitization and malnutrition *(Table 6)*.

As documented in the recent National Health Survey,[13] 49 per cent of people live in localities of less than 1,500. Farmers were in the lowest tabulated income group, in which the two-week illness and accident rate was 43 per cent, compared to 27 per cent for the highest tabulated income group. Only 16 per cent of those in the lowest income group consulted someone for this illness; 9 per cent saw a physician. Forty-six per cent of the sick in the highest income group consulted someone, 41 per cent a physician.[13] Although the meaning of illness may differ slightly from ours, the difference in incidence by economic group is probably significant.

While a significant percentage of medical students and interns were still interested in general practice, after the Rural Year only 20 per cent wanted that type of practice.[15] Rural practice permits a more intimate knowledge of one's patients. However, as the best educated individual in town, a physician, to be a leader, also needs to know much about the life of the people, their culture, and the application of science and health engineering. The opportunities for hunting, fishing and farming are good. Living is cheap, which permits the accumulation of savings—something which is difficult in the cities.

However, a physician in a small town "has to be too much of a saint," which does not come easily to the approximately 80 per cent of physicians who have grown up in towns larger than 30,000 and the 67 per cent who come from towns larger than 100,000.[15] Other difficulties mentioned in connection with rural practice are lack of auxiliary personnel, equipment, and medical consultation; the lack of cultural and recreational facilities of the city, and sometimes difficulties with the conservative Catholic hierarchy. On the whole, modern physicians are too highly educated and specialized to be equipped for

practice in a rural environment that is traditional and general.

In at least four of the five medical schools visited, the orientation and precepts of education were thoroughly modern, and comparable to those in the United States. Specialization abounds, laboratory services are fully available and widely used. Hence students are better prepared to enter the Colombian or United States health delivery system of the cities, than the rural system in Colombia. One possible solution is a school of rural medicine, turning out practitioners as described in Rosinski and Spencer's *The Assistant Medical Officer*.[17] This system has been used in Africa[28] and the British South Pacific Islands, but there is little experience with it in the Americas.

Another solution might be to develop a course on rural medicine in existing medical schools, with a manual of rural medicine to be tested and perfected by young physicians during the rural year. The Association of Medical Schools might be induced to organize writing this manual of rural medicine, and to correlate feed-back from rural physicians, thereby making successive issues more practical. An economically defensible list of standard equipment for health unit laboratories should be developed. This list should be based on a consideration of the necessary tests for diagnosis, which will be the only ones taught in the course of rural medicine.

At least three medical school faculties give postgraduate courses in rural centers. This provides them with good opportunities for insight into the rural medical problems, which can be characterized as "19th century diagnosis with 20th century therapeutics." Although some of the health centers have a microscope available for the diagnosis of stool and blood parasites, most physicians have no time to use it. In an endemic area, treatment for malaria may be based only on the presence of fever. For this and other simple laboratory examinations, nurses' aides could be trained, until laboratory technicians can be educated in sufficient numbers. An expansion of the regional hospital program is planned for this year, with a dozen hospitals to be built in towns of about 50,000. As a result some rural medical problems may be improved.

Providing medical service for the country is part of the general problem posed by the impact of modern science and technology on developing countries.[18] The prevalent technology of specialization has been developed in economically advanced countries, and is accepted in other countries because it is new and advanced. However, social structure may not be adaptable to the imported technology. The individual needs of developing societies are often overlooked, since the innovating sector of a country is internationally—or by its education, U. S.-oriented. But this innovating sector is small and alienated from the medical consumers who are anchored in tradition. Hence local social development often must precede use of imported technological methods. A case in point is the control of tuberculosis.

The Cost of Tuberculosis and Its Control

On the basis of a large sample the number of tuberculous patients is *estimated* by the Ministry of Health to be—

468,000, or 2.6 per cent of the entire population.[19]

An estimated 970 million pesos in gross national product are lost annually (60 million dollars). The number of tuberculin positives varied from 21 to 60 per cent even in the 7-14 year age group.[19]

The number of tuberculous patients *reported* in 1964 however was only—

13,128 = 2.8 per cent of the *estimated number* of patients.

The number of hospital entries was—

9,553 = 2.05 per cent of the total patient *estimate.*

Mean stay in the hospital was—

116 days.

Number of beds occupied was—

3,000 = 16 per cent of available hospital beds in Colombia.

Tuberculosis accounted for 2 per cent of the deaths.[8]

The cost of ambulatory treatment is low in view of the low drug and laboratory costs, about 300 pesos per year ($18.00).

The cost of a patient day in the hospital is estimated at 60 pesos ($3.60).

Medical costs computed for 9,553 hospital patients:

		Per Cent of Cost	
116 days—hospital	6.70 million pesos =	95.6	98.4
250 days—ambulatory	1.9 million pesos =	2.8	
Costs for the 3,575 ambulatory patients (year)	1.1 million pesos =	1.6	
	70.0 million pesos =	100	

Therefore, 98.4 per cent of funds are expended on only 2.05 per cent of the estimated number of patients. However, this would be sufficient to treat 233,000 patients if all were treated in ambulatory fashion = 50 per cent of *estimated* patients, instead of only 2.8 per cent.

Considering prevention, 680,000 BCG immunizations were performed in the years 1961-1964.[8] The cost is estimated at 1.36 million pesos. This was applied to only 3.8 per cent of the population, or an equivalent to one-fifth of the children under five years of age *(Figure 2)*. To immunize all children under five would cost an estimated 6 million pesos (3 million × 2 pesos).

The yearly outlay to vaccinate the newborn would be 1.2 million pesos (600,000 × 2 pesos).

By a single outlay of 10 per cent of the funds presently expended on the treatment of tuberculosis, all children under five years of age could be immunized, and with only 2 per cent of the budget, all the children born yearly. Presently, only one-fourth to one-fifth of the children are immunized. Late recrudescence has recently been shown to account for most progressive clinical tuberculosis.[20] Although based on an analysis of isolated cases, this important mechanism operates even though a certain percentage of exogenous re-infection was also present. The use of BCG in the first few months of life would assure that primary immunizing infection is not accompanied by the implantation of virulent bacilli, capable of giving rise to later relapse.

The most effective and economic means of disease control varies with the prevalence of disease. Using available funds to treat only ambulatory patients, and stressing case finding, 50 per cent instead of only 2.8 per cent of estimated patients in the country could be treated. At present, the management of tuberculosis in Colombia, with a reported rate of 75 per 100,000 (estimated to be closer to 2,600 by the Ministry of Health[19]), is patterned according to the traditional scheme of hospitalization. In the United States, with a rate of only 27 per 100,000,[8, 21] hospitalization is used effectively to prevent spread of infection from patients with active, open lesions. However, the high endemicity of infection in Colombia makes it virtually impossible to protect individuals from exposure. For this reason vaccine should be substituted for the otherwise inevitable primary contact with virulent bacilli. With only 2 per cent of the present yearly outlay for the treatment of tuberculosis, all the newborn could be immunized yearly. This should eventually reduce the incidence of clinical tuberculosis by 80 per cent, the apparent limit of a human population's capacity to develop immunity. Mathematical models to determine the optimal manner of applying control measures have been described.[27]

Population Problems

The phenomenal rate of population increase in Latin America fascinates North Americans and has special interest to Kansans who are major food producers. In Colombia the annual growth rate is about 3.2 per cent; this compares with 4 per cent in Costa Rica and Venezuela, and 1.7 per cent for the United States.[8] The time in which these populations would double their size is 22, 18, and 41 years. This population growth stems largely from decreased infant deaths without changed birth rates. Birth rates decreased sharply in Europe and Japan after preventive measures brought about a similar decrease in child mortality. It is as if mothers had not yet started to realize that their children had a better chance to survive.

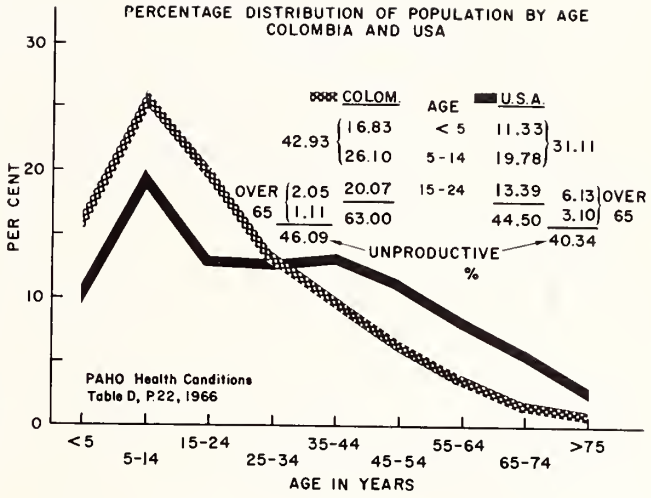


Figure 2. Percentage distribution of population by age in Colombia and U. S. Computation of unproductive fraction which must be supported.[8]

The town of Santo Domingo, near Medellin, might be cited as an extreme example. Here between 1956 and 1961 the infant mortality declined from 163 to 86 per thousand, apparently due to the introduction of the "health promotor" system.[12] Meanwhile the birth rate increased by 30 per cent. Improved nutrition, which enhances fertility, was not a factor here.[22] However, the last years' censuses showed the first country-wide reduction in birth rate from 39.2 per thousand in 1962 to 35.0 in 1966. In the state of Antioquia, the decline was from 41.8 to 40.0.

Birth rates are greatest in the rural areas. However, migration from the country to the city makes for a much greater growth rate of the urban population. For example the population of Bogota has doubled in the last 10 years, that of Cali in the last 11 years, and that of Medellin in the last 12 years.[13]

This town-ward migration creates large slums of unschooled agricultural workers. Since industrial growth lags, this urban migration complicates the already precarious nutritional and health problems of the country.

A unique and progressive aspect of the scene is the Colombian Association of Medical Schools (CAMS), which works quietly to disseminate family planning information. This is done at many levels, from postgraduate courses for physicians, to educational programs for students in high school, normal school, universities and professional schools. The Division of Population Studies of CAMS collects and publicizes data on infant malnutrition and mortality, illegitimacy, abortion (which accounts for 21 per

TABLE 8

AGE DISTRIBUTION OF PARENTS, MATERNAL AGE AND AVERAGE NUMBER OF CHILDREN IN LOWER INCOME GROUP, MEDELLIN[23]

Age Distribution of Parents			
FATHERS	MOTHERS	*At Given Maternal Age*	*Mean No. of Children*
Per Cent			
—	4.2	15-19	1.7
4.2	24	20-24	4.0
19	29	25-29	4.5
31	21	30-34	6.8
24	16	35-39	7.7
13	5	40-44	9.3
9	—		
—	—		—
31	29	*age—mean—no.*	5.2

TABLE 9

POST-PARTUM STATISTICS IN LOW INCOME GROUP* MEDELLIN, COLOMBIA

	Frequency Distribution—Per Cent		
Months Duration	LACTATION	POST-PARTUM AMENORRHEA	PERIOD BETWEEN LAST 2 PREGNANCIES
0	7.8	—	6.3
1-2	28	46	32
3-4	27	26	15
5-6	19	10	14
7-9	12	9	11
10-12	10		7.2
13-15	1	8	3.1
16-19	1.3		1.8
20+			9.8

* From Tables 10, 11, 13.[23]

cent of University hospital admissions, and 8.5 per cent of deaths during reproductive years in Cali), child abandonment, concealed infanticide, home abandonment and suicide in young mothers.

That the number of children is involuntarily high is further indicated by a recent survey conducted in Medellin.[23] Men preferred 3.7 children, and women 3.3, but the actual mean was 5.2, and 61 per cent of families had more than three children. *Table 8* illustrates the relationship of maternal age and mean number of children; *Table 9* indicates the quick succession of pregnancies in low income groups in Medellin.

In a country where church and state are not separated one would expect objections to family planning programs. A number of letters for and against contraception were published in Colombian newspapers during the summer of 1967. They provide us with first-hand information on the feelings involved.

The following letter to the governor of Antioquia, of which Medellin is the capital, was signed by 30 women (from El Colombiano, July 29, 1967).

"Citizens and mothers obedient to the mandate of the Catholic religion to which we are honored to belong and which we profoundly respect, just as we profoundly respect the constitution and the laws of the country. . . .

"We refer ourselves, Mr. Governor, to the widespread campaign on 'How to plan the number of one's children' which is treated in detail in leaflets prepared by the Colombian Association of Medical Schools, particularly by Dr. Mario Jaramillo Gomez, . . .

"We do not pretend to make a scientific analysis of the advantages and disadvantages of the procedure. We do not know enough to understand this matter, nor do we consider it necessary, since we base our petition on moral objections.

"The Catholic religion is the religion of the Colombian nation. It is only logical, that in morals, it fixes the norms of conduct. These must be complied with by Catholics, and by the authorities which by virtue of the Concordate are obliged to have special links with the Holy See. Not only Pope Paul VI, but also the Archbishop of Medellin, have already spoken about this delicate problem, and have said clearly, . . . that it is prohibited for all Catholics, at the penalty of grave moral sin, to take part directly in this campaign.

"We believe that passive tolerance is a source of guilt. Therefore we are directing ourselves respectfully towards you, to make use of legal measures over which you have disposition, to help us terminate once and for all, that which undermines the holy principles of the family, which is the indisputable and only basis of society.

"Can you enforce the prohibitions and sanctions which according to the church are obligatory, in view of the fact that Catholicism is the official religion of the state? Can you order that at least the leaders of the contraceptive movement limit themselves to serve only those who are determined to work against conscience and nature, without inciting others to take this erroneous course? Can you im-

pede the immoral, disgraceful and maliciously camouflaged propaganda which may fall into the hands of people unable to understand its scientific basis, causing them great dangers? No one else but you, Mr. Governor, a Christian of integrity, can solve this problem.

"God, country and citizens are waiting for you. God will recompense you for actions in the common good.

Respectfully"

The official church attitude was pronounced in a long letter dated July 30, 1967, El Colombiano. The Colombian bishops expressed their concern for responsible parenthood and, if necessary, use of the "rhythm method," as shown in the following excerpts:

"Contraception for capricious and egoistic motives is morally objectionable in all cases." The church emphasizes that it is necessary to work in Colombia, "towards a conscience of responsibility in the transmission of life. While we are in favor of all campaigns for responsible parenthood, we reject all campaigns which are based on birth control as if it were an aim in itself, . . ."

The clergy stated to be plainly aware of the difficulties which contemporary life creates for many families. They were also conscious of the "problem arising from the increase in population, and deeply disturbed by these." To be avoided, however, were dangerous unilateral solutions which might be applied without attention to the higher values of man.

They went on to say, "the child that is born into this world has the right to be nourished, sustained, and educated by his parents which have given him existence. . . ."

"One can ask therefore, can all parents in our society give to their children food, clothing, and shelter and the medical care necessary for their physical development . . . ?"

"Facts speak eloquently of the degree to which responsible parenthood is missing in our country. More than 150,000 illegitimate births occur annually, increasing population figures, and threatening the common good. . . . Every day more fathers and mothers abandon their homes, to the point of constituting a social problem. Thousands of children without homes are in the streets of our cities. Numerous families existing on infra-human levels of existence are guided solely by instinct in the determination of the number of their children."

Yet they said, "The birth control campaigns proposed by the Colombian Association of Medical Schools, by the Society for Family Well-being, and by other similar institutions cannot be approved. One should recognize when these insititutions have been able to create an attitude towards responsible transmission of life. But one should reject energetically on behalf of the entire society, all campaigns of birth control propaganda, and the dissemination of immoral methods. Likewise there is harm to dignity and human freedom in all psychologic pressure on individuals and groups by means of courses, medical consultation, and publicity campaigns. All psychological pressure and all methods of persuasion which work against the free decision of the spouses, constitute serious abuse."

"The President of the Republic has stated on repeated occasions that the demographic politics of the government 'shall be advanced in close collaboration with the church, which is the indisputable curator of Christian morals.' "

"These groups act against the welfare of the country, when they use public funds in campaigns not for responsible procreation, but in hostility to birth, utilizing methods contrary to Christian morals. The functionaries of the state have the obligation of justice and supervision, so that public funds are not utilized to the detriment of the common good."

(Signed by 60, mostly bishops of Colombia)

While the bishops' influence is vast, it is none the less limited. Certain young priests permit contraception for a period of time, or indefinitely for women with many children. A family planning clinic has operated in the Jesuit Javeriana Medical School.

Although the campaign of family planning has been in progress for only four years positive results are already apparent. The sale of contraceptives has increased enormously in the big cities, although not yet in the country. The role of the Association of Medical Schools has been to encourage free debate. They have invited priests to explain the church's attitude, and at the same time presented scientific and medical considerations. A group of 184 physicians from Medellin protested the Association's position on traditional grounds (El Correo May 7, 1967). This caused a group of 68 other physicians also from Medellin to address an open letter to the Association of Medical Schools (May 17, 1967) in which they say in part: ". . . we see with pleasure the campaign to provide appropriate information to all physicians of the country. However, we believe that your obligation should not be limited to instruct the medical profession, but it should extend to the public at large, as long as 'the fathers are the ones who decide with plain knowledge of cause the number of their children' (from Encyclical).

"It is clear that without adequate information of the details, it would not be possible to 'know the cause.' It seems unfair that the source of information

on methods of birth control remain inaccessible to the less well-to-do classes, which are the ones most affected by inadequate family planning.

"As the commission of theologians and scientists named by the Pope has not been able to come to a definite conclusion about efficient birth control methods, we do not wish to make a pronouncement either. We can ill afford to condemn today that which may be permitted tomorrow by the Catholic church."

It must be realized that the poor, especially in the villages, do not read newspapers. Although the controversy is obvious from the letters cited here, no details, or sources of information are identified in the newspapers. The poor depend more on radio and word of mouth for information. On the radio, I am told, controversy has not been mentioned. Incidentally, the 254 physicians taking a position, account for 28 per cent of the physicians in Medellin.[13]

Machismo, that ostentatious masculinity and aggressiveness which permeates the male culture of Latin America is rarely discussed in relation to the population problem. Although not pronounced in Colombia, it exists in latent form, and probably accounts for the greater resistance to birth control by men.

Attitudes towards contraception differ according to education and income.[23, 24] In a survey of leaders of Medellin[24] it was found that in spite of being married about twice as long, these men and women had fewer children than the lower economic groups.[23] This is also correlated with greater knowledge and use of contraceptive methods: 42 per cent used them frequently, and 41 per cent occasionally. Of those who employed contraception, various groups showed preferences for different methods. All politicians stated to have used contraceptive methods, and 52 per cent had used rhythm, 48 per cent the pill, and smaller percentages other methods. Of 96 per cent of educators who have used contraception, 86 per cent had used rhythm, and 19 per cent the pill. Among 70 per cent of businessmen and industrialists, 56 per cent had used the pill, and 30 per cent rhythm. Among 65 per cent of press and radio people, 15 per cent had used rhythm, 10 per cent the pill, 20 per cent coitus interruptus, with smaller fractions using other methods. Among 61 per cent of business women, 45 per cent used rhythm, 30 per cent the pill. The total averages from 188 married leaders of whom 83 per cent had used contraception, are: rhythm 37 per cent; the pill 37 per cent; condom 14 per cent; coitus interruptus 13 per cent; diaphragm and intrauterine devices, each 4 per cent; douche 3 per cent; jelly 1 per cent. This illustrates the ready acceptance of "the pills" which are obtainable in pharmacies without a prescription. More important, the pills do not require (however desirable) medical assistance for their employment, such as do intrauterine devices and diaphragm. Certainly, Catholic pharmacists offer the pills for sale. Half a dozen brands are manufactured in Colombia. However, condoms are not manufactured, and their importation is prohibited.[4] This illustrates the old attitudes towards contraception. The condoms used are contraband, expensive and hard to obtain.[4]

These statistics on contraceptive usage, and the number of children of community leaders indicate that some family planning had been effective for some time in those groups of people who had access to information and had the means to utilize it. The frequency of taking communion affected the frequency of personal contraceptive use very little; however, public positions, proposed or taken, are affected by religious attitudes, especially in men. To the question "Should a physician prescribe family planning methods when medically indicated, in spite of the attitudes of the Catholic church?" the following answered yes:[24]

Per cent

10 priests.
88 *women* who take communion *more* than once yearly.
47 *men* who take communion *more* than once yearly.
88 *men* who take communion *less* than once yearly.
93 non-Catholics.

Among low income groups the "acceptance of contraceptives in spite of church opposition" is 67 per cent among men, and 36 per cent among women. As reasons for not having used contraception, religious fear is cited by 32 per cent of both sexes; lack of interest, by 44 per cent of men and 26 per cent of women; and lack of information by 40 per cent of men and 57 per cent of women.[23] In addition, more men than women feel that "contraceptive methods are dangerous for health," and 15 per cent of men have not practiced them on account of "sexual excitement" or *machismo.*

In both groups women are more interested in family planning, but use it less. Men are more independent in the lower income groups although two-thirds attend communion once a week, which occurs in less than one-third of leaders of Medellin. Data suggest that in women ignorance is the main problem, whereas in men it is *machismo.* This is associated with the practice of religion in the upper income groups, but not in men of the lower income groups.

Finally, "the interest of the United States in population problems is considered motivated by its desire to control the power of developing countries" by

33 per cent of priests (60 per cent are neutral and only 7 per cent reject the thesis), whereas it is rejected by 74 per cent of women, and 64 per cent of men (irrespective of frequency of communion) in the leadership group. Apparently, nationalism is not strong, a fact borne out generally. Rather there is resentment against United States' intervention by the losing group.

The Future: Progress With Problems

Americans confronted with the difficulties of underdeveloped countries are bound to wonder how living standards of the people can be improved. As with most other needs to adapt to environment, education is the long-term answer. That is, education based on the application of the scientific method, which is responsive to changes in living, and affords self-renewal to society.

Primary and secondary education in Colombia and most other Latin American countries tends to be oriented toward tradition and history. It does not prepare students to search, question and to re-evaluate. As the majority of students will accept the word of their professor, so will they accept all that comes from government, though often with apathy and skepticism. Hence, traditional Latin societies produce few innovators of social processes. Participation of people towards a functioning democracy is marginal. In Colombia about 15 per cent of children do not attend primary school, and 85 per cent do not attend secondary school—clearly missing opportunities to realize their full human potential. Those few who attend universities come insufficiently prepared for modern needs. They do not have the transitional periods afforded us by the college of liberal arts and science. Rather, they enter directly from high school into the professional curriculum, which produces engineers, architects, lawyers and physicians, but few experts at intermediate technical levels.

During the last 100 years, new methods have come along in the health fields at a gradual rate. In developed industrial nations, these new technologies could be applied slowly towards improving the people's health. Examples are antisepsis, water systems, sewage systems, vaccination, malaria control, hookworm control, and nutritional supplementation. Although costly in time and money, the best methods could be selected by trial and error. At present, we have available a whole collection of technologic methods to be adapted to underdeveloped areas. There is not enough manpower and money to apply them all at one time, nor can they be accepted ready-made by a traditional society, without preliminary and concomitant social change.[18] Hence, planning is essential to the application and acceptance of modern health technology.

Establishing priorities, and planning are the crucial elements of development. As basic programs can be considered:

1. More food through improved agricultural production and distribution.
2. Better education, for community and national development.
3. Improved medical care and preventive medicine, especially of the economically active groups.
4. Facilitation of family planning.
5. Judiciously planned industrialization, taking into account regional needs, transportation and markets, and dislocation of people attracted by the new industry.

In each of these categories, subdivisions and alternative methods require differentiation as to cost and effect. There can be no absolute priorities. All four are inter-related and are means, as well as aims, of development. However, because the technology is new and cheap, more rapid gains can be achieved through family planning than by improvements or intensification applicable to any of the first three ongoing efforts.

Colombia has made skillful use of higher education in the health fields by sending its best people elsewhere for postgraduate education and re-investing their efforts nationally. Incidental to this is a not insignificant "brain drain."[25] However, the constructive interest of the United States, through individuals and universities, and assistance by private and governmental projects is greatly appreciated, both in the health fields and in general development. Examples are the Alliance of Progress, the Peace Corps, and Foreign Aid.

The Colombian Association of Medical Schools is unique in its initiation and coordination of health research and educational programs geared to the needs of the country. It is involved in demographic studies, family planning education, standardization of residents' requirements, certification of specialists, hospital functioning, and in public health and socio-economic planning related to health. An outstanding achievement was the conduct of a National Health Survey in 1965-66 in collaboration with the Ministry of Public Health and PAHO/WHO. In what was probably the first nation-wide survey ever conducted, the incidence of illness, mortality and health need, the health care available, and medical and nurses education were studied by means of carefully selected samples. A preliminary report was published in 1967.[13] There is good collaboration of the individual medical schools with the association, especially in postgraduate education that extends into some of the rural areas—in Antioquia, around Medellin, and around Cali and Bogota. Especially the medical schools in Medellin (Antioquia) and Cali (Valle),

are continually developing, and are thoroughly modernized. There is much interest in the socio-economic aspects of health and disease as evidenced by numerous student papers and doctors' theses.[26] Concern and science are being combined in a small mountain village, Heliconia, by Dr. Hernan Velez from Medellin, who is studying the feasibility of supplementing the brown sugar staple with proteins, vitamins, calcium and iron. In Medellin, the University of Antioquia is building a new campus, uniting for the first time the several schools which for varying years have been dispersed in several buildings in the center of town. Important educational effects should be derived from improved function, better inter-relationships, and not to be under-rated, the beauty of design. *Antioquia Medica* now is the leading medical journal of the country and is becoming one of the leading medical journals in Latin America.

Still lacking is an over-all health plan, assigning priorities to the needs of nutrition, preventive medicine, patient care, and family planning. These compete for money and manpower and need to be phased somehow into an integrated whole. Plans are in progress to unite the social security system and the general health system, to upgrade patient care and to make better use of existing facilities. Plans are also being made to improve the conditions of medical practice in rural areas, with the goal of increasing medical services there. This complex, difficult development must be spearheaded and planned within the country, coordinating priorities and stimulating local initiative. We can only watch and help if we can. Perhaps we will learn how secondary development is engineered under considerable pressure in Colombia's own system of democracy.[1] And we must admire the effort, the spirit of this nation as it grows into the technological twentieth century.

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Law-Medicine Comment

The Physician-Patient Relationship —Establishment and Termination

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THE RELATIONSHIP OF PHYSICIAN and patient can be visualized from several points of view, beginning with the actual familiar interaction between the doctor and his patient in terms of harmonious relation, or rapport, which is of course essential to good medical care. It may be considered in terms of medical ethics, an area of obvious importance. Additionally, it must be recognized as a definite legal relationship, resulting in rights and obligations recognized by the law and enforceable through judicial proceedings. This discussion concerns itself with these legal aspects, dealing in this issue with establishment and termination, and in a subsequent issue with substantive rights and obligations arising therefrom.

Establishment

The legal physician-patient relationship begins when the physician in response to an express or implied request to treat a patient, or to aid in the treatment of a patient, undertakes to render the service. Conversely, if professional services are rendered for purposes other than treatment, the relationship does not arise, as illustrated in the discussion of cases below. The relationship may also be modified by legislative enactment, as seen below in respect to Workmen's Compensation Law.

The relationship arises out of contract, express or implied, general or special, and the rights of the parties are governed by the general laws of contract. Thus, special limitations are effective in such situations as a practice limited to the office, employment only for specific tests, or a single examination or consultation. Although the relationship is grounded in contract, the legal action against the physician is usually based on negligence, for breach of a duty imposed by the law by reason of the physician's calling and the relation between the parties, but may also be based on breach of contract.

A physician is ordinarily not required to accept a patient with whom he has no existing relationship, but ethically should not refuse to render service in an emergency or in a situation where no other medical help is available. A possible exception, although no case is yet apparent, is the duty of a physician, who has agreed to render care at an emergency room and whose name is therefore on a call list, to examine and treat all presenting patients. Once the physician-patient relationship is established, the physician is under obligation to render reasonable care until termination of the relationship. This duty of reasonable care is also generally applicable to professional services rendered in the absence of a physician-patient relationship, as occurs in examination of persons at the request of third parties for purposes of employment or insurance.

The physician-patient relationship is established when the physician, in response to a request, undertakes to render service. The relationship ordinarily continues throughout an illness, or until it is ended by mutual consent, or by withdrawal or dismissal of the physician.

Absence of the relationship was found in the following: The physician went to the jail at the brother's request to examine a driver to determine if he were drunk, and not to perform professional services (North Carolina, 1964). Physicians examined a convict for purposes of determining whether he should be confined in an institution for defective delinquents (Maryland, 1964). The examination was for the purpose of determining the ability of the accused to stand trial (New York, 1964).

A physician who allegedly failed to recognize symptoms of congenital heart disease in a child was not in a physician-patient relationship with the prospective adoptive parents (Florida, 1966). A company doctor, who concealed findings of silicosis from an employee, had a duty only to his employer as long as he did no more than direct or supervise the exami-

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nation, but when he undertook to render additional services he became liable to the patient who was prevented from taking protective steps through his reliance on these services (Maryland, 1964). A physician employed by an aircraft company to examine job applicants, was not bound to discover tuberculosis from an x-ray under Texas Workmen's Compensation Law (1963). An employer's staff physician, sued by a fellow employee for professional negligence, was held immune from such suit under the Michigan Workmen's Compensation Act (1967).

Possible establishment of the physician-patient relationship resulted in reversal of a directed verdict for a physician in the following situation: Physician *A* was out of town when the patient was referred to him. Physician *B* cared for the patient in the interim. Upon his return, physician *A* checked the hospital records, phoned physician *B*, and apparently agreed to assume care. When physician *A* arrived at the hospital he was informed by persons in the hallway that another doctor was preferred and that his services were not desired. He departed without verifying the statements or identifying the person making them and without notice to physician *B*. The court held that physician *A* was not entitled to a directed verdict in his favor since there was a question as to whether or not the referral established a physician-patient relationship, and if so, whether it was legally terminated (Michigan, 1964).

Possible establishment was held to be a question for the jury, where a physician had talked to the patient by telephone after the patient had walked to the emergency room for treatment. The patient awoke with chest pains, presented himself at the hospital, but was told that the hospital did not handle patients belonging to his insurance plan. The nurse contacted a plan physician, who talked to the patient by telephone. The patient then returned home intending to consult his plan physician later in the morning, but collapsed and died of a heart attack. The court stated that a physician who undertakes to examine and treat a patient and then abandons him may be held liable for malpractice. Whether there was an abandonment, whether the physician made a proper diagnosis fully appropriate under the circumstances, or whether the physician offered to make an examination at the hospital and the offer was rejected by the patient, were questions for the jury (New York, 1960).

Termination

Unless the terms of employment limit the services to be rendered, the relation of practitioner and patient continues until the services are no longer needed or until terminated by the parties by mutual consent or at the will of either party. Death of either party terminates the relationship, but substantive matters survive termination in such areas as confidentiality, privilege, and causes of action relating to the deceased patient or the estate of the deceased physician. Improper withdrawal by the physician may result in abandonment, which has been found in such acts as a statement of withdrawal to the patient, unqualified refusal to further attend, leaving the patient while the physician's presence is still necessary, refusal to treat at a certain time, or refusal to treat at a certain location. Abandonment may be obviated by timely notice to the patient of the physician's illness, or by total uncooperativeness of the patient. Adequate notice with sufficient opportunity to secure other medical services must be given to the patient in the event the physician withdraws. Provision for qualified substitutes when the physician is unavailable and complete written records of all transactions are essential.

Termination of the relationship, resulted in reversal on appeal of a judgment against a physician, arising out of transfer of an unconscious patient to another hospital. The patient, an acute alcoholic, presented at a Veterans Hospital after midnight, was seen by the admitting physician, and was given paraldehyde. The patient then became semicomatose, and was transferred with a guard and an attendant to the emergency room of a second hospital. On arrival at the second emergency room the patient was examined by a physician, and was subsequently released to the police after a telephone conversation between the two physicians. The patient vomited, aspirated, and was dead on return to the emergency room. The court, in holding for the first physician, stated that a physician having undertaken employment may not abandon a patient but must render his services as long as they appear needed, and though continued personal attention may be unnecessary, the physician must then advise the patient upon his future care and treatment. Here, the physician's duty went no further than a careful and safe delivery of the patient into competent hands (Virginia, 1964).

Kansas Statutes and Decisions

The beginning of the patient-physician relationship in Kansas is apparent in the statutory law relating to physician-patient privilege, where the concept of consultation for purposes of treatment is evident. "Patient" is defined as a person who for the sole purpose of securing preventive, palliative, or curative treatment, or a diagnosis preliminary to such treatment, of his physical or mental condition, consults a physician, or submits to an examination

by a physician. "Physician" is defined as a person licensed, or reasonably believed by the patient to be licensed, to practice medicine or one of the healing arts as defined by statute.[1]

The necessity of consultation for purposes of treatment is further illustrated in a Kansas Supreme Court decision, holding that no doctor-and-patient relationship existed, and the doctor's testimony was therefore not privileged, where the doctor withdrew the motorist's blood for a blood alcohol test, where the motorist had given the sheriff written consent, where the sheriff had called the doctor, and where the doctor was not the motorist's regular physician.[2]

In 1962 the court discussed termination of the relationship. The decision held for the plaintiff patient in an action against the attending surgeon resulting from failure of a resident to remove a drain prior to discharge of the patient from the hospital. The court stated that one who engages a physician or surgeon to treat a case impliedly engages him to attend throughout the illness or until his services are dispensed with; that once initiated, the relationship of physician and patient continues until it is ended by consent of the parties, revoked by dismissal of the physician, or until his services are no longer needed; but that a physician has a right to withdraw from the case, and if he does so before the need for his services is at an end, he must give due notice and afford the patient ample opportunity to secure other medical attendants of the patient's own choice.[3]

Conclusions

1. The physician-patient relationship is established when a physician, in response to a request to treat or to aid in treatment of a patient, undertakes to render this service. The request may be either express or implied.

2. A physician is ordinarily under no obligation to accept a patient and thus establish a physician-patient relationship, but ethical and possible legal exceptions exist.

3. Once the physician-patient relationship is established certain legal rights and obligations arise, including the physician's duty to render reasonable professional care until termination of the relationship.

4. The physician-patient relationship ordinarily continues throughout an illness or until it is ended by consent of the parties, or revoked by dismissal or withdrawal of the physician. Complete written documentation, signed releases, and proper use of witnesses are essential in any premature termination.

5. A physician who withdraws from a case without giving the patient proper notice and opportunity to procure the services of another physician, may be liable for the consequences resulting from abandonment.

References

1. K.S.A. 60-427.
2. 189 Kan. 673, 371 P. 2nd 188 (1962).
3. 189 Kan. 287, 369 P. 2d 238 (1962).

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CP + T

Newsletter

Coronary Vasodilators

THE CENTRAL NERVOUS SYSTEM is injured by oxygen lack more rapidly than any other tissue but with this exception: the heart is more susceptible to oxygen lack than any other organ in the body. The oxygen supply of the heart depends upon the blood flow through the coronary arteries and this in turn depends on the pressure in the aorta and resistance in the coronary circuit. Cardiac muscle cannot enter into oxygen debt like skeletal muscle. Hence, its activity is dependent from minute to minute upon an adequate supply of oxygen. For this reason, any interference with the coronary circulation at once injures the heart. This is an important principle for, as soon as the heart begins to fail, a vicious cycle is established *because* the more feeble the heart beat the poorer the coronary circulation and the worse the oxygen supply to the heart. Angina results if the oxygen supply of the heart falls short of its requirements.

The coronary flow in man is approximately 60-80 cc/100 gm/minute. If this amount is lowered, a coronary artery dilator can increase the size and caliber of the coronary vascular bed. We will briefly review the various coronary artery dilators with special emphasis on two points: (1) the value of nitroglycerin as compared to other agents, and (2) perhaps we are too preoccupied with vasodilation. Perhaps this is not the type of drug that can be considered ideal.

Briefly, nitrates were introduced into medicine by Sir T. Lauder Brunton in 1867. At that time, Doctor Brunton was a 23-year-old medical student who reasoned that perhaps the new compound amyl nitrate, which was shown to lower blood pressure in animals, may relieve the anginal pain of his patient if it was true that an increase of coronary blood flow is what would be necessary. Since that time, nitrites have proved to be valuable in the treatment of angina pectoris. Amyl nitrite is an inflammable, volatile liquid and it is administered by inhalation. It has been replaced by nitroglycerin. Nitroglycerin is given sublingually where absorption is more rapid and reliable than from the intestine. In addition, the drug then reaches the coronary vessels without first passing through the liver which metabolizes it. The action begins in two minutes and may last up to thirty minutes.

The action of pentaerythritol tetranitrate (Peritrate) and erythrityl tetranitrate begins in 10-15 minutes and lasts up to four hours. These compounds do *not* displace nitroglycerin and should be used in conjunction with it.

Tolerance develops to nitrates, especially if used regularly and frequently.

Toxicity—Collapse due to fall in blood pressure resulting from overdosage may occur.

Clinically, EKG changes induced by exercise can be prevented with nitroglycerin and Peritrate.

Alcohol is not a coronary vasodilator. In no test has it been shown to have an effect on the coronary circulation. Of course, you need not be completely heartbroken over this finding because moderate drinking on a chronic basis may have a most salutary effect, especially if the drinker allows himself to be relaxed and not "busied up" by his inbibing. Actually, the *anti-anxiety* effect of alcohol is the beneficial action.

The medical literature on angina abounds in contradictory statements. In many ways it is like a perpetual presidential election campaign.

We are often faced with reports in the literature either extolling some new therapeutic Messiah or damning some old therapeutic friend of ours. Recently we have seen a number of them. Oram and Stanton

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

concluded, after an involved clinical study, that there is at present no drug that can be relied on to abolish or diminish attacks. Certainly one must take their report with a grain of salt. The same can be said of the beneficial effects of especially the longer acting nitrites. Many of the studies are obviously poor and do not provide substantial answers to this important problem. Underlying this *uncertainty* is the fact there is 30-35 per cent rate of improvement with placebos. This can be further complicated by the fact that increased attention in a research study tends to increase improvement of any kind of therapy. This is indeed a well known fact that there is a sense of *comfort* and *confidence* which follow *any* precise medical attention.

One must, of necessity, conclude that the drug of choice is nitroglycerin. The second and third choices are also nitroglycerin. When seconds or fractions of a minute are important, amyl nitrite is the drug of choice. If there is a place for long-acting nitrites, Peritrate seems to be one to be commended. The fact that the long-acting nitrates are now commonly sold in mixtures which contain tranquilizers or sedatives makes one wonder. The other fact is that patients using the long-acting nitrate are also regularly instructed to carry nitroglycerin with them *"just in case."* This shows the lack of confidence that we have for their prophylactic utility. Another vote of "no confidence" comes from the pharmaceutical manufacturers who now put them up in "sustained action" dose forms despite their reputed slow action. Certainly the sustained release capsules and tablets of nitroglycerin are completely worthless.

In conclusion we may say that, although many drugs have been tried, none have been as effective as nitroglycerin. Hope is expressed in recent developments that may help to uncover new therapeutic agents.

List of Drugs

A. *Nitrites and Nitrates*
   Amyl nitrite
   Glyceryl trinitrate (nitroglycerin)
   Erythrityl tetranitrate
   Pentaerythritol tetranitrate (Peritrate)
   Trolnitrate (Metamine)
   Mannitol hexanitrate (Nitranitol)
   Isosorbide dinitrate (Isordil)
   Clonitrate (Dylate)
B. *Xanthines*
   Aminophylline
   Theophyllin
C. *Others*
   Dipyridamole (Persantin)
   Papaverine
   Amotriphene (Myordil)—under investigation

AMA SERVICE BRIEFS

Introduced less than two years after its paperback counterpart, "Horizons Unlimited," the AMA's most recent film contribution in the constantly expanding area of health careers, is now available for booking. Created to familiarize young adults with the wide range of rewarding career opportunities in medicine and allied fields and emphasize the ever-increasing need for trained health personnel, it is provided complimentarily except for return postage.

This 16 mm, sound-color production replaces the now-obsolete film, "Helping Hands for Julie." It features approximately 12 specific health career fields and is about 28 minutes in length. School and non-medical groups may secure a print from Modern Talking Pictures, Inc., Prudential Plaza, Chicago, Illinois 60601. Physicians and auxiliary members should contact the AMA Medical Film Section, 535 North Dearborn, Chicago 60610.

* * *

When it's time to deliver a speech, are you at a loss for words? Is your approach ineffective? Are you confronted with "delivery dilemma?" A possible solution to these typical problems is now provided by the Officers Services Department of the American Medical Association. An invaluable kit, "An Aid To Speakers," may be the key to your individual success or the success of your speakers program. It contains a veritable wealth of source materials, ranging from generalized speeches aimed at lay audiences to numerous, up-to-date training tips. Physicians may obtain single copies free of charge by directing their requests to the Officers Services Department. Quantities of up to 50 are made available to state and county medical societies sponsoring formal speakers programs.

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As proof of the popularity and timeliness of the *Manual on Alcoholism,* more than 10,000 copies have been distributed since its release late last October. This 100-page publication, "intended to give physicians a brief outline of the major factors in the causes, diagnosis and treatment of alcoholism and the medical management of alcoholic patients," is available for fifty cents in the U. S., Possessions, Canada and Mexico.

Medical students, hospital interns and residents in these areas may obtain it for only forty cents. The price in all other countries is sixty cents. Requests should be directed to the American Medical Association, 535 North Dearborn, Chicago, Illinois 60610. To facilitate handling, orders should include payment and contain the code number, MH-3.



Progressive Vertigo, Incoordination and Weight Loss

THIS WAS THE SECOND University of Kansas Medical Center admission for this 51-year-old white married man from southeast Kansas. He was an engineer at a chemical plant, and was admitted for the complaints of "vertigo and incoordination of movements."

The patient had been in a fair state of health until seven months before admission when he noticed intermittent numbness and tingling of the fingers of the left hand. Two months after this he started to have cramping pain in the left side of his neck, left shoulder and arm, associated with extreme vertigo when he turned his head quickly from side to side. At about that time he developed poor control of his left arm and hand, and would often have shaking and awkwardness of movement especially when reaching for things.

He had intermittent headaches, often left-sided, moderately severe and partially relieved by propoxyphene (Darvon). He occasionally had diplopia associated with vertigo which made him unsteady in walking. Ten days before admission he had an episode of severe vomiting and abdominal pain. He entered another hospital, and later transferred to this medical center for further evaluation. He had felt generally weak, but there had been no focal weakness of the arms and legs. He denied difficulty in talking and swallowing.

He had had a hemorrhoidectomy in 1942, and an exploratory laparotomy and appendectomy three years before the onset of his last illness for lower abdominal pain, nausea, and vomiting. The appendix, however, was reported to be normal. The first KUMC admission was two and one-half years before his last admission, and was for episodes of nausea, vomiting and anorexia. He was discharged after 12 days on antacids, antispasmodics, and a bland diet. He seemed to have done fairly well with this regimen. He had smoked a pack of cigarettes a day for the past 30 years. He was a non-alcoholic, happily married man with three children.

His father had died at 71 with a "stomach disease." His mother had died at 73 with "high blood pressure and heart attack." The patient was the fifth of eight siblings. The first four elder siblings are living and well, the sixth (a brother) had "silicosis"; the seventh (a sister) died of "stomach cancer" at 45; and the eighth (a sister) died of "tuberculosis" at the age of 34.

He had had impairment of hearing in his left ear for the past two or three years. He had had no cough or febrile episodes. In the eight months before admission he had had a poor appetite and had lost 30 pounds. Defecation had been less frequent; urination had been of normal frequency without pain or difficulty.

On admission his blood pressure was 100/70; pulse rate, 74 per minute and regular; respiratory rate, 20 per minute; temperature, 97.7 F. He was a well-developed, asthenic, well-oriented, conscious, coherent man who was bedfast because of vertigo. There were no signs of injury to the head. His neck was rigid with marked muscle spasm, and he complained of extreme vertigo when his neck was hyperextended. His chest was symmetrical and clear to percussion and auscultation. There was normal sinus

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Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, gynecology and obstetrics, and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

cardiac rhythm without murmurs or cardiomegaly. The abdomen was scaphoid and soft with a right paramedian scar. The liver and spleen were not palpable. There was slight tenderness in the left lower quadrant on deep pressure, but there was no rebound tenderness. There was normal anal sphincter tonus. The prostate was not enlarged. The genitalia were normal. The back and extremities were unremarkable. The patient was right-handed. His gait and station were not tested because of extreme vertigo. There was no gross weakness of the motor system. Muscle development was generally poor but without apparent atrophy. Touch, pain, and temperature senses were intact, but there was a slight decrease in vibration and position sensibilities in the left foot. Stereognosis was poor. Visual field and acuity were grossly normal, and the pupils were equal and symmetrical, and normally reactive to light and accommodation. One examiner reported a suggestion of venous engorgement of the left optic disc; others however, thought that both optic discs were flat. Extraocular movements were full in all directions of gaze. There was mild, unsustained horizontal nystagmus on lateral gaze both left and right. He did not have diplopia. A slight left-sided hearing impairment was present; Weber's test was non-localizing. He had bilateral finger-to-nose and heel-to-knee ataxia, more severe on the left. Successive alternating movements were slower on the left. Reflexes were one to two plus in both upper extremities and one plus in the lower extremities. No Babinski's signs were present. His mental status was normal.

His admission urine specimen had a pH of 6 and a specific gravity of 1.020. Albumin and sugar were negative. There were occasional pus cells per high power field. The hemoglobin was 15 gm per cent; hematocrit, 49; leukocyte count 9,310 (76 per cent filamented polymorphonuclears, 22 per cent lymphocytes; 1 per cent eosinophiles; and 1 per cent monocytes). Platelets were reported as adequate. The fasting blood sugar was 60 mg per cent; blood urea nitrogen, 14 mg per cent; serum sodium, 137 mEq per liter, potassium, 4.7 mEq; chloride, 100 mEq/L. The CO_2 was 33 vol per cent. Serology (VDRL) was nonreactive. Serum cholesterol was 198 mg per cent; serum lipids, 453 mg per cent; tital proteins, 6.4 gm per cent; albumin, 4.3; globulin, 2.1 per cent. The alkaline phosphatase was 1.0 units; acid phosphatase, 0.8 units; BSP, 7 per cent.

The spinal fluid was yellowish-green, turbid, and clotted on standing. It contained 2,000 leukocytes per cu mm (72 per cent polymorphonuclears and 28 per cent lymphocytes); and 3,100 red cells per cu mm. The spinal fluid sugar was 30 mg per cent; protein, 1,500 mg per cent. A smear was negative. India ink preparations and 72-hour cultures were negative. The opening pressure on lumbar puncture was 270 mm of water; closing pressure, 90 mm. The histoplasmin test was positive after 48 hours with 20 mm induration and mild erythema. The coccidioidin intradermal test was questionable. The tuberculin test was negative.

The patient was essentially afebrile during his 27-day stay in the hospital. He was bedfast with persistent complaints of nuchal pain and rigidity, dizziness and vertigo. After two weeks of exhaustive work-up, the patient was transferred to the neurology service. Amphotericin-B was given by intravenous drip for ten days until a day before death. While the patient was on the Amphotericin-B regimen his blood urea nitrogen, blood count and spinal fluid were periodically checked. There was no remarkable increase in blood urea nitrogen, a slight fall in hematocrit and hemoglobin, and a fairly steady leukocyte count. The spinal fluid had been persistently turbid and xanthochromic, with low sugar and elevated protein. The patient was conscious, well-oriented, and cooperative on admission. Eleven days before death he complained of severe abdominal cramps, and five days later of urinary retention. A day before his death he lapsed into a semi-comatose state, subsequently developed labored respiration, and finally died at 5:30 a.m. the following day.

Dr. Mahlon Delp (moderator): Are there any questions?

Thomas Singer (student)*: Was a cisternal puncture done?

Dr. Lilian Gonzales (resident in medicine): No.

John Vakas (student): When was the last spinal tap done?

Dr. Gonzales: The last spinal tap was done three days before death. The opening pressure was 560 mm.

James Brinkman (student): Was a gastric analysis done?

Dr. Gonzales: Not during the second admission.

Steven Charles (student): Can you describe the type of vomiting that the patient had?

Dr. Gonzales: The vomiting occurred ten days before admission. He retched, complained of abdominal and substernal pain, and the vomitus was not colored but just clear.

J. Ross Comer (student): Could we have a better description of the headaches?

Dr. Gonzales: The headaches were left-sided, especially frontal and temporal, they were moderately severe and partially relieved by propoxyphene. They related to change in position and vertigo.

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* Although a student at the time of the conference in March, 1964, he, like the others referred to as students, received the M.D. degree in June, 1964.

Mr. Singer: How many lumbar punctures were done?

Dr. Gonzales: There were five lumbar punctures done. They were on the 10th, 17th, 19th, 20th, and 24th hospital days.

Mr. Vakas: Which direction was the fast component of the patient's nystagmus?

Dr. Gonzales: If you asked the patient to look at the left, the slow component would be toward the right, but if you put your finger to the right, the slow component would be towards the left.

Mr. Comer: Was there any known contact of the patient with his sister who died of tuberculosis?

Dr. Gonzales: Not for the past 16 years.

Mr. Vakas: Could you describe further the nature of the labored respiration?

Dr. Gonzales: The respiration was fast and deep, for about 30 minutes before the patient died.

Mr. Brinkman: Did he ever have photophobia or conjunctivitis?

Dr. Gonzales: No.

Mr. Charles: Was there a history of night sweats?

Dr. Gonzales: No.

Mr. Comer: Was there any history of allergy to sulfonamides?

Dr. Gonzales: There was none recorded.

Mr. Singer: What was the color of the spinal fluid?

Dr. Gonzales: The first spinal tap was done on the tenth hospital day, and was described as yellowish-green. On subsequent spinal taps it was just xanthochromic.

Mr. Vakas: Was there any alteration in the nystagmus with a change of the position of the head?

Dr. Gonzales: He had it in several common positions.

Mr. Brinkman: Was caloric stimulation done?

Dr. Gonzales: No.

Mr. Charles: Was an EEG done?

Dr. Gonzales: No, one was not done.

Mr. Singer: What were the protein levels in the later taps?

Dr. Gonzales: They ranged from 2200 to 2650 mg per cent.

Dr. Chien Liu (infectious disease): Was any serology for histoplasmosis done?

Dr. Gonzales: Yes, the titer was reported as only eight.

Dr. Dewey Ziegler (neurology): How low did the spinal fluid sugar go?

Dr. Gonzales: It went about as low as 28 on the fourth tap, that being on the 20th hospital day, with a concomitant blood sugar of 71 mg per cent.

Electrocardiograms

Mr. Charles: This is a standard EKG with full standard in all leads *(Figure 1)*. There is a normal sinus rhythm with a rate of 85 per minute. The mean QRS axis on the frontal plane is within normal limits. In leads II, III and aVf the Q wave may be enlarged and I interpret this as of normal septal origin. On the precordial leads there is a slow progression of the R wave across the right pericordium. In aVr there is an increase in the height of the R wave but I consider this to be a normal electrocardiogram.

X-Rays

Mr. Vakas: We have a number of films. The plane film of the skull shows some calcification which could be in the choroid plexus. There is also some suprasellar calcification. There appears to be no destruction of the sella turcica. I interpret this film as being normal. The early phase of the carotid arteriogram reveals no narrowing of the vertebral or the common carotid arteries. The anterior cerebral artery appears to be pineal gland calcification. The cephalocaudal position of the middle cerebral artery does not appear distorted. The later phase of the carotid arteriogram reveals filling of the peripheral cerebral vessels, and there is no significant straightening, tortuosity or narrowing. I interpret these films as being normal. The pneumoencephalogram reveals non-filling of the ventricles, and I do not know why. There is increased air in the sulci, particularly on the left side. I interpret this as being possible cortical atrophy.

The gallbladder visualization reveals a concentration in the gallbladder. The barium swallow reveals a long stomach, I do not see any evidence of a duodenal ulcer. I interpret the gallbladder visualization and the barium swallow as being normal. The liver scan reveals a filling defect which could be artifact. The lateral and superior contour of the liver is smooth. I interpret this liver scan as normal. The chest x-ray shows the diaphragms to be depressed. There is increased radiolucency. The heart is of normal size. There is some calcification in the left hilar area. Also there appears to be some increased fibrosis in the left upper lung field. I interpret the chest film as showing emphysematous changes. The brain scan shows a normal concentration over the facial and peripheral regions. I interpret the brain scan as normal.

Dr. Delp: Thank you, Mr. Vakas. Dr. Germann, do you have any further comments?

Dr. Donald R. Germann (radiology): Let us return to the brain scan. Actually we have gone through a couple of periods in our interpretation of brain scans. In the first we would insist that everything we called positive was very obviously positive. I am sure by using that rule this brain scan would be considered negative, and I am not really sure yet

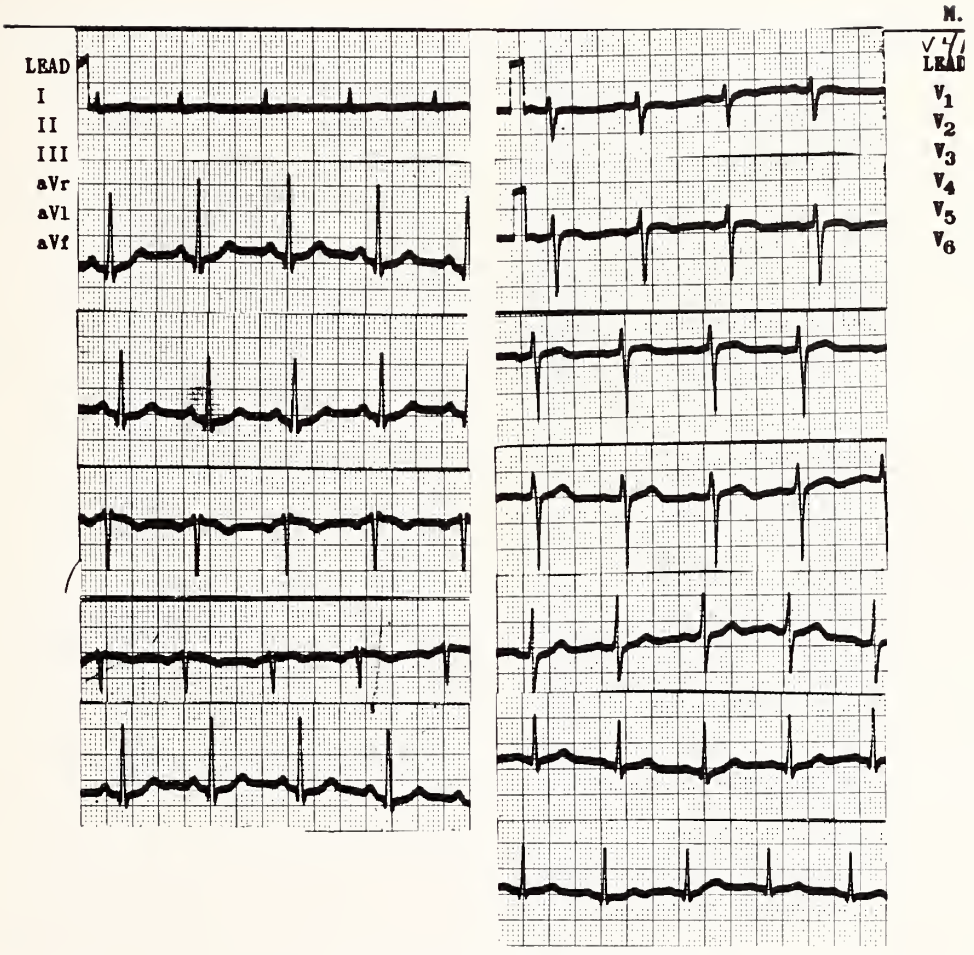


Figure 1. Admission electrocardiogram.

that is not the right way to do it. However, as you interpret this very critically, there are a few minor changes present. First of all, there is an increased density on the right lateral view which could very well be the sigmoid sinus. It is, however, a little more localized than the usual sigmoid sinus, but it does extend up a ways. The anterior-posterior projection shows a little increase on the right side as compared to the left. Again, the significance of this might be questioned. In the chest there is considerable fibrosis in the right apical area, but it seems unchanged as compared with an earlier film. Diaphragms are flattened, the heart is small, and I think this is an emphysematous chest. The defect on the liver scan is an artifact. I have no explanation for it except that when you deal with mechanical gadgets you have to put up with this sort of thing once in a while.

Dr. Delp: Thank you, Dr. Germann. Now Mr. Comer is going to begin our discussion.

Discussion

Mr. Comer: We feel that the essential points in this case consist of the following: A middle-aged man in fairly good health had progressive development of a number of neurological signs and symptoms accompanied by a 30-pound weight loss. We will base our differential diagnosis on the patient's chief complaints of vertigo and incoordination. We rule out vestibular and cochlear diseases because there is no history of tinnitus or ear infections, and because they do not explain the other neurological findings of our patient. We will not consider ocular diseases which cause vertigo because of their benign nature and because we believe the ocular symptoms are secondary rather than primary. Systemic causes of vertigo, such as hypertension, anemia, blood dyscrasias, diabetes mellitus, allergic disorders, and vitamin deficiencies have been ruled out because they do not explain the focal neurological signs and symptoms found in our patient, and because verifying laboratory data are lacking. Though the history of occupational exposure, headache, and weight loss suggests a chemical poisoning, we rule out this diagnosis because there is absence of convulsions, mental and typical systemic changes. Degenerative diseases such as syringomyelia and multiple sclerosis can cause vertigo and other neurological signs and symptoms.

They are ruled out because the widespread neurological signs and symptoms they produce are lacking.

Cerebral vascular accidents can cause an almost unlimited variety of neurological symptoms and cannot definitely be ruled out as a disease process in our patient. Because, however, the patient had no history of atherosclerosis, hematological disease, or diabetes and because our patient's clinical history is not the common course of a CVA, we will dismiss it. We exclude encephalitis because of absence of fever, malaise, sore throat, stupor, and convulsions. Encephalomyelitis is eliminated because of the absence of optic neuritis, cranial nerve palsies and hemiplegia.

Brain abscess is an attractive diagnosis, but for lack of a history of preceding infectious disease, the afebrile course, and the lack of somnolence or slowing of mental processes, we rule out this entity. Syphilis could have caused the neurological abnormalities found in our patient as well as his abdominal complaints. Meningovascular syphilis is characterized by symptoms of low grade meningitis, cranial nerve palsies, unequal reflexes, and irregular pupils with poor light and accommodation reflexes. Tabes dorsalis patients have lancinating pains in their legs, ataxia, abnormal pupils, and paresthesias. A syphilitic gastric crisis could well have accounted for our patient's episodes of nausea, vomiting and pain. But on the lack of the previously listed findings and the non-reactive serology we can eliminate neurosyphilis.

Tuberculomas of the brain are usually secondary to tuberculosis elsewhere in the body, and are rare. A tuberculoma could have caused our patient's neurological findings, but in the presence of a negative skin test and lack of evidence of systemic tuberculosis makes this diagnosis improbable.

The clinical picture of focal neurological involvement and the curious cerebral findings focus our attention on the meningitides and intracranial tumors. Bacterial meningitides are unlikely in the absence of fever, convulsions and because an organism was not cultured. We exclude viral meningitides for the reasons given under encephalitis and encephalomyelitis. A negative skin test, absence of pulmonary involvement, atypical course and unsuccessful cultures will not support a diagnosis of tuberculous meningitis. Of the fungal meningitides we eliminate nocardiosis, blastomycosis, maduromycosis and actinomycosis on the basis of lack of typical history and clinical course. Despite positive skin tests to coccidioidomycosis and histoplasmosis exclude both of these diseases because there is no evidence of primary involvement of the lungs, skin, hair, liver or spleen. We consider cryptococcal meningitis because of the insidious onset of intermittent and increasing headaches, vertigo, nausea, vomiting, and focal neurological findings and the cerebral spinal findings. It can mimic an expanding intercranial lesion so that surgical procedures are sometimes considered. We rule out this disease because of a lack of sensory changes, an essentially afebrile course, and because organisms were not demonstrated in the cerebral spinal fluid. Ruling out cryptococcal meningitis, however, does not deny the possibility of a space-occupying cryptococcal granuloma.

The diagnosis of a space-occupying intracranial lesion can be based on the progressive and insidious onset in a middle-aged man of anorexia, nausea, vomiting, vertigo, incoordination and headache. Metastatic tumors are considered because of his history of smoking, because of a family history of stomach cancer, and because of his own abdominal complaints. Metastatic tumors are excluded because of the tendency to be multifocal, only rarely do metastases cause focal neurological deficit.

We feel that the patient's primary disease was an intracranial neoplasm located in the region of the left cerebello-pontine angle which produced progressive development of left-sided hearing impairment, numbness and tingling of the left hand, neck pain, vertigo, headaches, intention tremor, position and vibratory impairment, poor stereognosis, bilateral ataxia, nystagmus, and possible optic disc changes. The most common tumors located in this area are acoustic neurinoma, meningiomas, epidermoid and vascular tumors. Cerebellar hemangioblastomas, astrocytomas, medulloblastomas, and brain stem gliomas may also project into this region.

Our primary diagnosis is astrocytoma of the left cerebellar hemisphere. It is the most commonly occurring cerebellar tumor, and we think that it best explains our patient's signs and symptoms. We believe that the immediate cause of death was respiratory depression following cerebellar tonsillar herniation.

Dr. Delp: Thank you, Mr. Comer. Mr. Charles, can you offer any estimation as to how long this man had been sick? You know he did come into the hospital three years ago complaining of nausea and vomiting. There were no findings at that time.

Mr. Charles: I would say about two and one-half years.

Dr. Delp: Mr. Brinkman, do you think he had a tumor at that time?

Mr. Brinkman: I think that there is a good possibility that he had the onset before that time.

Mr. Charles: I agree.

Mr. Singer: I believe that the patient had a peptic ulcer at that time.

Mr. Comer: I think that it is an excellent probability of a brain tumor, but I cannot exclude a peptic ulcer.

Dr. Delp: What about these rather extremely high levels of protein in the spinal fluid?

Mr. Charles: With blocking the cerebral spinal fluid flow there are sometimes quite high levels.

Mr. Brinkman: It would have been interesting to see what a cisternal puncture would have revealed.

Mr. Vakas: Cystic degeneration of the tumor with leakage into the spinal fluid.

Dr. Delp: You noticed that these specialized examinations that were done were so non-revealing. Do you have any explanation for this, Mr. Charles?

Mr. Charles: I do not think that any organisms were cultured because I think the patient's spinal fluid was sterile.

Dr. Delp: I am talking particularly about these films you saw. Mr. Comer?

Mr. Comer: I do not have an adequate explanation for this.

Dr. Delp: What about these high cell counts, those low spinal fluid sugars. Mr. Brinkman?

Mr. Brinkman: The low spinal fluid sugars could be explained on the basis of the mass protruding into the subarachnoid space.

Dr. Delp: Dr. Zeigler, may we have your comments?

Dr. Zeigler: There are two parts to this case which can be discussed. The first one is the site of the disturbance in the nervous system, and here we certainly find every indication that there is a lesion in the posterior fossa. I would point out to you that the patient's major disturbance was vertigo. Any patient with this extreme vertigo on position with vertical nystagmus and severe ataxia must have a posterior fossa lesion. Patients who do have posterior fossa lesions and who do have this amount of positional vertigo almost always have lesions which affect the vestibular cerebellar connections; that is, lesions deep in the brain stem or in the fourth ventricle, catching the cerebellar vestibular connections. This is uncommon in lesions outside the brain stem such as an acoustic neurinoma. There are other indications of this being a posterior fossa lesion. Non-filling of the pneumoencephalogram when there is a posterior fossa lesion is a common finding. Air does not get from the subarachnoid space into the ventricular space. I believe that this accounts for the non-filling of the ventricles, and this would also account for the fact that the arteriograms were not contributory because the arteriograms in posterior fossa lesions are contributory only when they show the internal hydrocephalus. We do not know what the lesion is up to this point, but certainly the history of vertigo, ataxia and the death (which really sounds like a herniation of the posterior contents into the foramen magnum) is further evidence of this. There is a question, I think, as to whether the patient may have had other brain lesions. I would call your attention to the fact that he persisted with numbness and tingling of the left hand and at examination he was found to have disturbances in sensation on the left side. This would suggest that possibly there was an additional lesion in the right hemisphere, possibly in the parietal area, accounting for the wholly unilateral sensory disturbance. Of course, we find this unilateral sensory disturbance in the posterior fossa lesions, but it is a bit uncommon. It is more characteristic of lesions in the cerebral hemisphere. So I would suspect, that the patient may have had a lesion also in the hemisphere. We do not have any laboratory evidence of that. An EEG would have been very interesting.

Now, the second question, of course, is what type of lesion. With this high spinal fluid protein and low sugar with a consistently high number of cells you would have to assume that this patient has some chronic granulomatous meningeal process. And we have to combine this then with the diagnosis of the posterior fossa lesion. Which of the granulomatous meningitides might it be? Tuberculosis is certainly a possibility, but there are several things against it. The fact that the patient was afebrile; that there was no good evidence of extrameningeal involvement. We would have to assume that the patient had a tuberculoma of the cerebellum which ruptured into the spinal fluid which gave tuberculous meningitis.

It is not a brain abscess because the patient has to be quite sick and febrile with a brain abscess which ruptures into the spinal fluid. That gives an acute meningitis. I would strongly consider one of the fungal infections with a granuloma of the cerebellum with meningeal implants. Now Torula is certainly a possibility, a toruloma granuloma of the cerebellum. It is disturbing that the Torula was never seen on cultures. It is usually found. The fact that it was not seen or cultured would influence me against that. In histoplasmosis, there are almost no cases reported with neurological manifestations, particularly with the brain; there is some with meningitis. There are some striking cases of Nocardia infection of the brain with abscesses and secondary meningeal implants.

I do not think it is a tumor because the only tumors which usually lower spinal fluid sugar are the metastatic tumors to the meninges, carcinomatous meningitis, and again, we have no evidence for a primary in this man. The spinal fluid protein is usually not this high, even in carcinomatous meningitis. I would guess that the patient had a fungal granuloma, even though it is a rarity. And I would guess that he probably had granulomas elsewhere in the body, and that his previous abdominal distur-

bances were primary infection or disseminated infection of some fungal disease.

Dr. Delp: Dr. Steegman?

Dr. A. Theodore Steegman (neurologist): Since I know the pathologic diagnosis in this case, and I do not intend to give it away, I would only like to make a couple of comments to elaborate on what Dr. Zeigler said about some of the neurological signs which are given here. If we pick out the symptoms that are mentioned, particularly in the first two paragraphs, and take the triad of vertigo, diplopia and vomiting, it points definitely to a posterior fossa and a brain stem type of pathology. Also, it ought to be mentioned that this patient's hearing loss was only on the left side. We usually, from the neurologic point of view, consider unilateral hearing loss with a good deal more clinical significance than if it is bilateral for the simple reason that there are so many individuals that have hearing loss bilaterally where the primary pathology is in the ear. Another thing which might be mentioned is that the nystagmus was horizontal. With the ataxis described, and with the horizontal nystagmus, this would point to something in the posterior portion of the brain stem, since we have seen some very good examples of vertical nystagmus where the pathology lies further forward, in the region of the superior colliculus.

Dr. Delp: Dr. Brackett?

Dr. Charles E. Brackett (neurosurgeon): I, too, know the diagnosis so I will confine my remarks to the condition of the patient as he presented in the hospital since he was on our service. First, as far as the location of the lesion is concerned, the presence of numbness and tingling in his left arm and awkwardness without pain and reflex changes indicates this is a central lesion. His other findings are those of brain stem findings. The outstanding thing about this patient on admission, perhaps not reflected completely on the protocol, is the fact that he was chronically ill. This patient had lost 35 pounds in weight, he had lost muscle mass, he was pale and cachectic. He looked chronically ill. Secondly, these episodes when he sat up were as much syncopal as they were vertiginous. He actually lost consciousness when sitting up. This, of course, was combined with the low blood pressure. Now, it seemed to us when he was admitted that the differential diagnosis lay between a chronic meningitis due to fungus, meningeal carcinomatosis, the possibility of a fungal granuloma in the posterior fossa, and possibly these conditions complicated by the compromise of the basilar or vertebral circulation. Therefore, one of the things which was done was the angiogram. The significant thing about this angiogram is, first, the absence of evidence of vascular insufficiency, secondly, the absence of any stains or evidence of displacement of vessels in the posterior fossa, and thirdly, and most important and interesting, is the absence of any evidence of hydocephalus, which certainly we would expect to see with a space-occupying lesion in the posterior fossa.

Now, I would like just to comment on the spinal fluid. The greenish color of the spinal fluid in this sort of clinical picture should of course raise the question of melanoma. When one has 3,000 white cells in the spinal fluid, combined consistently with a low sugar, and an elevated protein, this does indicate chronic infection in the spinal fluid. Now, it is true that tumors do shed tumor cells occasionally. They are not, however, usually associated with polys. And this very high poly count, it seems to me, does indicate a chronic meningitis. The absence of a positive culture is of no significance whatsoever in ruling out a chronic meningitis. It is well known that it is very difficult to culture these organisms, and repeated attempts must be made. We have certainly had this experience. As far as the angle location is concerned, with angle tumors I think it must be borne in mind that long tract signs are present in less than 10 per cent of the cases. Furthermore, with an angle tumor, which I presume you base on the presence of this hearing loss for two or three years plus his other neurological signs, we would expect to see evidence of fifth nerve involvement and ipsilateral cerebellar difficulties. These, of course, were absent. We did the liver scan because we were looking for granulomas. As you know histoplasmosis is endemic in this area, and we have had a number of incidences of histoplasma meningitis and granulomas. In cases of disseminated histoplasmosis in this hospital the diagnosis very frequently is established by surgical means, or by a liver biopsy, or by a bone marrow biopsy, or by something of that sort. It is a very difficult diagnosis to make. I would simply like to say that at the time of his transfer, our clinical diagnosis was that of a chronic meningitis due to granuloma, either histoplasmosis or Torula.

Report of the Pathologist

Dr. John Kepes (pathologist): I wondered when it came to select this case for a CPC whether or not this was a good teaching case, and in a sense, it is because it is a "real life" case. All the factors and all the data we have here are not necessarily helpful, and some of the helpful data are missing, but that is the way life is.

The general autopsy showed pulmonary edema and cardiac dilatation. There were erosions in the gastric mucosa and there was about 200 ml of bloody fluid in the gastrointestinal tract. This was probably terminal and due to multiple superficial Cushing's ulcers. Although there was a history of some urinary retention, all we could find was moderate dilatation of

the renal pelves and trabeculation of the bladder. There was no organic obstruction. There were some old granulomata in otherwise emphysematous lungs, and they were consistent with old, healed histoplasmosis.

Now, coming to the central nervous system, I would like to try to discuss the location of the lesion before the nature of the lesion just as is done in clinical neurology. *Figure 2* shows this area of the lesion, and I think it explains pretty well the symptoms. I do not think a cerebellar location would explain everything so well as the lesion here. One of the leading and first symptoms of this patient was numbness and tingling of the fingers. The sensory

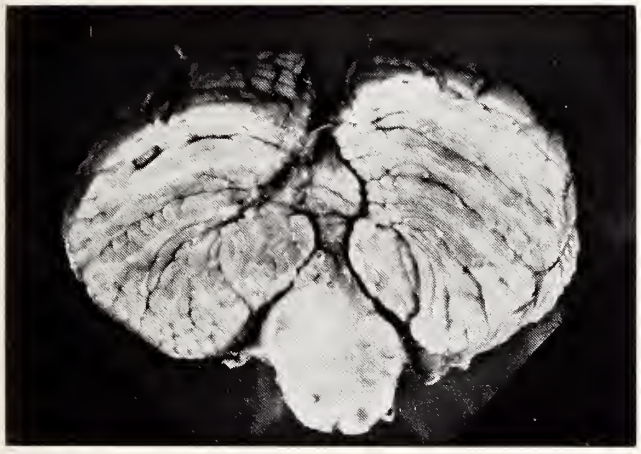


Figure 2. This picture shows grossly normal cerebellar hemispheres. The left upper lateral portion of the medulla oblongata is swollen and bulging due to an intramedullary glioma.

pathways of the upper extremity end in nucleus cuneatus. After that came vertigo, and the vestibular nucleus is also in this area. In addition, the patient had severe ataxia on the left, and included in this section is the restiform body that contains the vestibulo-cerebellar tracts, and the dorsal spino-cerebellar tracts, among others. Thus the patient had a lesion in this area involving the vestibular nucleus, the cuneate nucleus, and the restiform body, with vestibulo-cerebellar tracts. A lesion in this strategic area explains the three main complaints the patient had. Eventually, there was an expansion to the nucleus gracilis. If you will read the history carefully, you will notice that the tingling and numbness started in the fingers, but at the time of the later neurological examination it was also present in the left lower extremity, which indicates involvement of the fasciculus gracilis or its nucleus. Now, we have a massive lesion all right, but the question may be asked: Why did not the other cranial nerve nuclei become involved? Why was there not clinical paralysis of the vagus nerve? The glossopharyngeal nerve? And the only explanation for that particular question lies in the nature of the lesion as you shall see in a little while.

The basal surface of the brain showed swelling of the medulla, particularly on the left, and some herniation of the cerebellar tonsils that contained some abnormal tissue. That abnormal tissue was neoplastic in nature, but at the time of autopsy everything seemed to be surrounded by a gelatinous exudate that appeared at gross examination as an infectious, or at least inflammatory, exudate. The cerebellar tonsil is involved in this somewhat soft and mushy mass, which is also surrounding and compressing the medulla oblongata, and I think that the final cause of death was related to pressure on these vital structures.

The main lesion itself was at the left upper outer area of the medulla oblongata where there was a massive neoplasm, obscuring the structure of the normal medulla and causing asymmetry between the two halves of the medulla. The lesion was quite close to the surface and that was responsible for the meningeal involvement.

A microscopic view of the tumor *(Figure 3)* shows what some people refer to as a "polar spongioblastoma," or a rather low-grade astrocytoma. The term polar spongioblastoma refers to the somewhat spindle-shaped cells that imitate a certain earlier embryologic state of the astrocyte when they are indeed bipolar and are called "spongioblasts." Some of the bipolar cells very neatly follow the fiber tracts of the normal brain stem. This is one characteristic of this lesion; instead of destroying the fiber tracts they infiltrate between them. The spindle-shaped nuclei of these astrocytes really do not look very

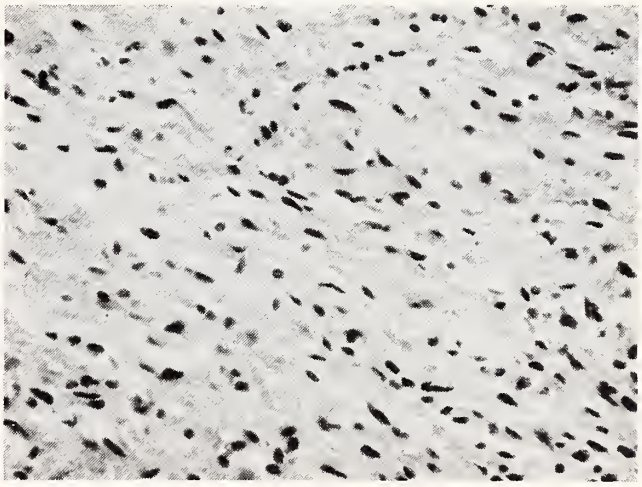


Figure 3. The tumor of the medulla consists of bipolar, spindle shaped cells which infiltrate along the fiber tracts of the white matter. (So-called "polar spongioblastoma" or "piloid astrocytoma.") Little pleomorphism or atypia is seen in this area.

malignant. There is no pleomorphism. It is quite a distinct possibility that this neoplasm was present three years ago when the patient complained about the left-sided hearing loss. As frequently happens to these neoplasms, however, sooner or later they may become more malignant.

An important question receives an answer here, namely: How could some of the cranial nerve nuclei have escaped injury? The infiltrative nature of the tumor permitted the survival of nerve cells within the tumor *(Figure 4)*.

However, the more destructive aspects of this tumor come to light when we looked at the original area where complete destruction eventually took

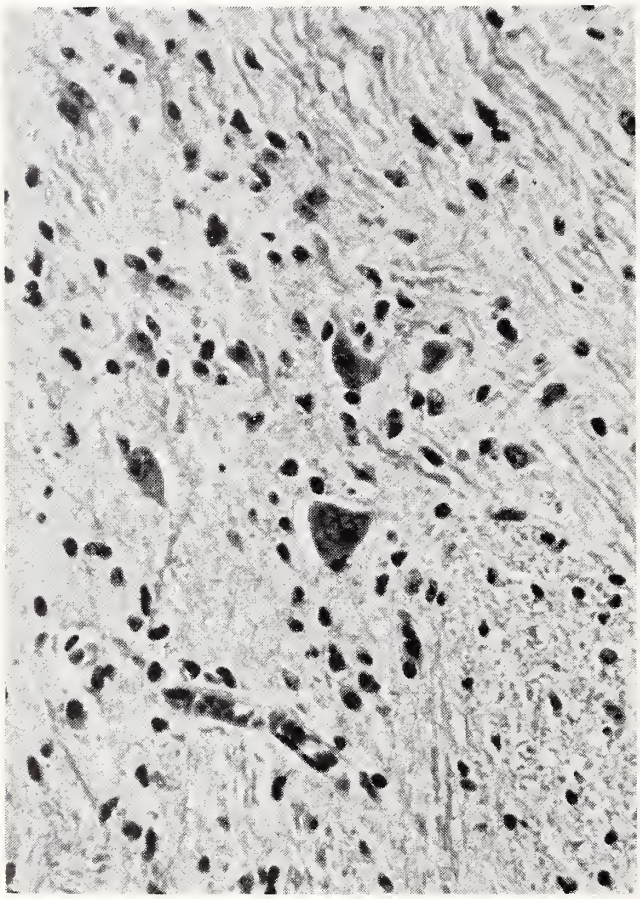


Figure 4. The same tumor as it infiltrates the grey matter of the medulla. Surviving nerve cells are seen in the midst of the tumor.

place, and there we saw an area of massive necrosis within the tumor. This is certainly a hallmark of malignancy and so is massive vascular proliferation in glial tumors. If you look at the tumor in this area it does not look like a "spongioblastoma" at all, there are no spindle shaped cells, it is highly cellular and quite pleomorphic *(Figure 5)*.

The tumor appears even less differentiated as it grows through the meninges. Also, here in the meninges the presence of giant cells characterize this lesion as a glioblastoma *(Figure 6)*.

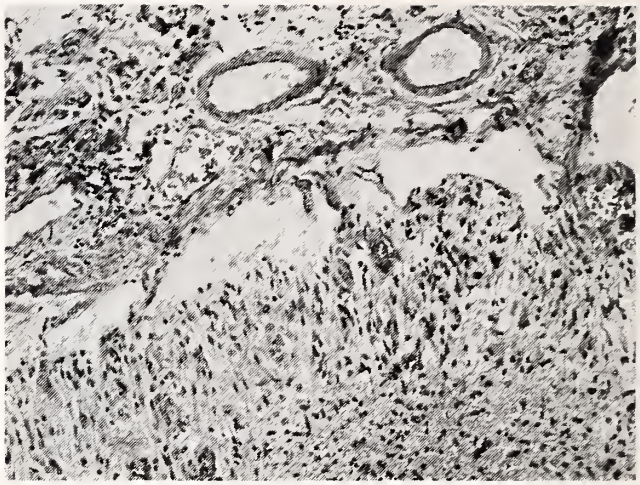


Figure 5. An accumulation of neoplastic astrocytes is seen at the surface of the medulla. The overlying meninges show chronic inflammation but no tumorous involvement in this area.

In summary, this patient had an astrocytoma in the left upper quadrant of the medulla oblongata involving the vestibular nucleus, the cuneate nucleus, the restiform body and other structures and eventually turned into a glioblastoma, invaded the spinal meninges and caused the patient's death. Brain stem gliomas are not common in adults. In children they make up about 9 to 22 per cent of central nervous system tumors. In adults they used to be considered a rarity; however, a very illustrious member of our medical school, Dr. Harry White, and his associates researched cases of brain stem gliomas in adults and published his findings in the April 1963 issue of *Neurology*. They refer to 44 patients from ages 16 to 70. The oldest patient to ever have a brain stem glioma was seen in the Massachusetts General Hospital. He was 74 years old. The tumor behaves in

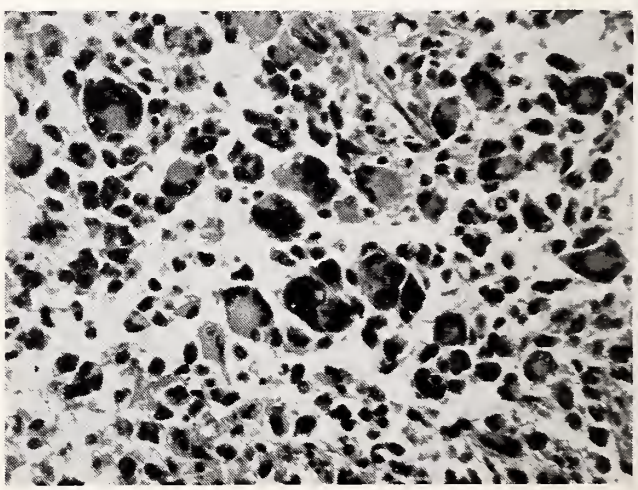


Figure 6. Sections from the meningeal "exudate" around the spinal cord show highly atypical bizarre tumor cells, characteristic of glioblastoma. The tumor appears much more malignant in the meninges than inside the medulla (compare with *Figure 2*).

these adult patients more or less as in their child counterparts. Interestingly, very rarely do these patients exhibit signs of increased intracranial pressure. Characteristically, they have long fiber tract symptoms, cranial nerve symptoms, and almost invariably ataxia.

Questions

Dr. Delp: How do you explain the polys and the high number of them? In view of the meningeal involvement of this tumor, how do we explain the negative cytology, or is this commonly seen with this?

Dr. Kepes: Both questions are quite justified. The first question points to a problem which we face sometimes not only with regard to the meninges but with other serous membranes. We should be aware of the fact that there is such a thing as "carcinosis of the peritoneum," which is a spread of carcinoma all over the peritoneal surface, and there is such a thing as "carcinomatous peritonitis," where carcinoma spreads over the serous membrane but is also provoking severe inflammation. The same holds true for the meninges. There is "carcinosis of the meninges," and there is "carcinomatous meningitis" with a polymorphonuclear and other response. In this case I think the primitive nature of the tumor, the massive infiltration of the meninges, and probably the necrosis that was present even in the meningeal area, helped to provoke inflammation. Why did this patient have a negative smear? Well, for one thing maybe the overwhelming inflammatory response overshadowed the tumor, and therefore most of the cells found in the smear were regarded as either inflammatory cells or histiocytes. Some of the cells that looked like lymphocytes might have been samples of those smaller neoplastic cells, but the large malignant-looking cells were not present in the smear. One possibility is that the tumor blocked the passages higher up and at the particular time of the smear there were not many tumor cells dropping into the fluid.

Dr. Brown: Is there any explanation at all for the abdominal pains for which he had one operation from which they apparently recurred?

Dr. Kepes: It is difficult to explain the pains in his past history, but the abdominal pains two days before death were most likely caused by multiple erosions of the gastric mucosa.

Dr. Steegman: I would like to mention that in Froin's Syndrome, which might really be the result of a tumor in the spinal canal which may cause xanthochromia as well as increased pressure and this can be due to the fact that the considerable amount of venous engorgement and possibly some of the cells get out into the spinal subarachnoid space, but this is almost like a case of Froin's Syndrome, only the block is higher up and of longer duration.

Dr. Delp: In the original case of Froin's Syndrome, was it syphilitic meningitis?

Dr. Steegman: I do not know about the original case, but I know that an increased albumin is very common in Froin's Syndrome.

Dr. Delp: Any other questions? I think the implications in this case are eminently clear. I do still feel somewhat guilty about having let that notation about using Amphotericin-B on the patient get through, but as Dr. Kepes said, this is life, and we did use it.

Primary Diagnoses

Astrocytoma, grade III or IV of brain stem, involving medulla and extending into the meninges, cerebellar tonsils and spinal cord; tumorous occlusion of foramen magnum.

Dilatation of both cardiac ventricles.

Edema of lungs.

Acute passive congestion of liver, spleen and kidneys.

Acute hemorrhagic gastritis.

Accessory Diagnoses

Atherosclerosis of coronary arteries, slight to moderate; of aorta, moderate to severe.

Cholesterolosis of gallbladder, slight.

Healed granulomata of both lungs, consistent with histoplasmosis.

Multiple fibrous pleural adhesions, bilateral.

References

White, Harry H.: Brain stem tumors occurring in adults. *Neurology* (Minneapolis), 13:292-300, April 1963.

WICHITA PHYSICIAN RETURNS FROM VIET NAM

Cline D. Hensley, M.D., of Wichita, has just returned from South Viet Nam where he served the civilian population for two months with the American Medical Association Volunteer Physicians for Viet Nam.

Dr. Hensley graduated from the University of Kansas and received his medical degree from the University of Kansas School of Medicine. He is an orthopedic surgeon practicing at the Wichita Clinic.

Stating his reasons for volunteering, Dr. Hensley said: "If Western free society is to survive, or indeed deserves to survive, we must find the means to provide the basic necessity of civilization to all parts of the non-Communist world. Our obligation is especially heavy in Viet Nam where we as a nation, rightly or wrongly, have committed ourselves so thoroughly. This was one individual's effort to discharge that obligation, and it represented a decision resulting from intra-family discussions including three teen-age sons."

The President's Message

DEAR DOCTOR:



The committees of your Society have been active. Their deliberations have been considered by the commissions. Resolutions of importance to the Society are ready for presentation to the House of Delegates. Before final action is taken each will be discussed before reference committees.

Remember, every member of the Society has an equal voice and opportunity to appear and discuss the resolutions before the reference committees. Check the resolutions which appear in the commission reports in this JOURNAL and if you have convictions, why not come to Topeka by Monday morning (April 29) and, through your participation in the discussion, help shape Society policy. Stay for the sports afternoon, the fun night Monday evening, and the remainder of the annual meeting.

As my year ends, may I express to many, many of you my appreciation for your efforts for the good of the Society, and to all of you my deep appreciation for the honor to serve as your president.

Sincerely,

President



Editorial COMMENT

The House of Delegates

Elsewhere in this issue appear almost fifty resolutions which will be presented to the House of Delegates on Sunday, April 28 at the Ramada Inn, Topeka. These, together with other resolutions which will be introduced on that day, will be considered by Reference Committees on Monday morning. On Wednesday, May 1, the second session of the House of Delegates will vote on them. By such action is Society policy established.

Several resolutions, especially this year, have a tremendous impact upon every member. The decision, for example, on the subject of verification of physician's charges will concern every member who is in practice. It is vital, therefore, that each doctor become interested at this time and exert whatever influence he may have to bring the Society to a proper decision. The following avenues are recommended.

1. Become familiar with the wording of these resolutions. Inquire into the purpose intended by their implementation. Explore the alternatives. Question each step of this research and then establish a considered, informed opinion.

2. Advise the delegates from your component society. Give them the benefit of your knowledge. Fortify them to represent your views before the House of Delegates.

3. Come to Topeka and listen to the reports of the Commission chairmen who prepared these resolutions. Every member of this society is welcome to attend sessions of the House of Delegates.

4. On Monday appear before the Reference Committee that considers the resolutions in which you are interested. Here you are encouraged to express your views. It is the place where every member has an equal opportunity to influence action the Society shall take.

The invitation to attend is extended every year, but rarely has the Society faced as many decisions of such far-reaching effect as will occur at this Annual Session. Therefore, the invitation at this time carries a most special urgency.

AMA News

Have you noticed the changes in the *AMA News?* Are you aware it consists of 16 pages every week and that ten or more are devoted to editorial material? Have you seen the other new features, such as the expansion of the letters-to-the-editor section on page 5?

Notice in the weeks to come "As Others See it" and especially the letters-to-the-editor section. Each physician with a constructive comment on the AMA or any subject relating to health or medicine is invited to submit it to the *AMA News* for publication. Members are afforded space in this medium to express their own individual opinion. Your ideas can hereby be shared by the medical profession throughout the United States. It is not only an opportunity, but your contributions are solicited.

Welcome to Topeka

The members of the Shawnee County Medical Society extend a sincere and hearty welcome to fellow members of the Kansas Medical Society in joining us in Topeka for the annual Kansas Medical Society meeting, April 28, 29, 30 and May 1, 1968. Headquarters will be at the Ramada Inn.

We hope to have a healthy mixture of scientific as well as non-scientific programs to entice everyone. The scientific program will offer an uninterrupted day of outstanding authorities speaking on various topics, diverse enough to interest all. The non-scientific portion of this meeting will include the Sportsman's Day events, a special Gaslight Party, and the annual President's Banquet with an unusual program.

We are confident that this year's meeting will be one of the best. Again the members of the Shawnee County Medical Society extend a warm invitation. We are looking forward to seeing all of you.

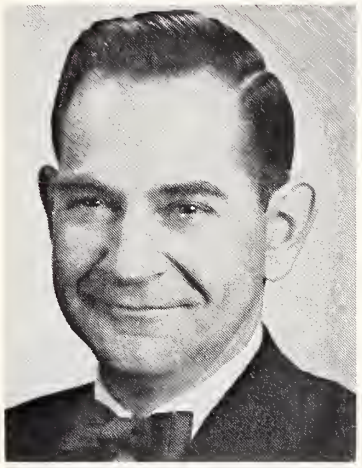
Donald R. Pierce, M.D., President

Shawnee County Medical Society

109th Annual Session, Kansas Medical Society

Sunday, April 28, through Wednesday, May 1, 1968

SCIENTIFIC SPEAKERS



CLYDE E. CULP, M.D.
Rochester, Minnesota

Born, Tekoa, Washington, 1919. Graduate University of Oregon Medical School, 1943; certified, American Board of Colon and Rectal Surgery, Inc., 1963. Came to Rochester in 1958 as a fellow in surgery of the Mayo Graduate School of Medicine; appointed first assistant in surgery in 1960, and first assistant in proctology in 1961. He was appointed to the staff of the Mayo Clinic as a member of the Section of Proctology in 1962; named instructor in proctology, Mayo Graduate School of Medicine, 1966.

Born, Newton, Kansas, 1914. Graduate, St. Louis University School of Medicine, 1943; internship and residency in surgery, St. Francis Hospital, Wichita, 1944-1945. Member, Sigma Xi honorary research fraternity, 1940; member of American Cancer Society 18 years; President, Kansas Division, American Cancer Society 1963-1965; National delegate, American Cancer Society, 1966; National board of directors, American Cancer Society, 1967. Dr. Fent is a member of the Kansas Medical Society and began his practice in Newton in 1946.

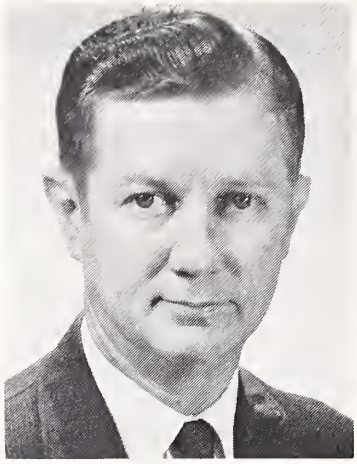


LEE S. FENT, M.D.
Newton, Kansas



MIECZYSLAW FINSTER, M.D.
New York, New York

Born, Lwow, Poland, 1924. Graduate, University of Geneva, Switzerland, 1957. Certified, American Board of Anesthesiology, 1963; Fellow, American College of Anesthesiology, 1966. Appointed assistant attending anesthesiologist, Presbyterian Hospital, New York, 1964; in charge of Obstetrical Anesthesia Service, Sloane Hospital for Women, New York, since 1962. An associate in anesthesiology, College of Physicians and Surgeons, Columbia University, New York, 1962-1964, he is now assistant professor of anesthesiology.



DONALD R. GERMANN, M.D.
Kansas City, Kansas

Born, Alta Vista, Kansas, 1923. Graduate, University of Kansas School of Medicine, 1947. Certified American Board of Radiology, 1951; Fellow, American College of Radiology. Professor of radiology, University of Kansas Medical Center; President, Great Plains Nuclear Medicine Society; member of the Governor's Nuclear Energy Advisory Counsel. Dr. Germann resigned his position at the University of Kansas March 1, 1968, to become radiologist at St. Luke's Hospital, Kansas City, Missouri.

Born, Baltimore, Maryland, 1898. Graduate, Johns Hopkins School of Medicine, 1923. Diplomate, American Board of Obstetrics and Gynecology; member of faculty, Albert Einstein School of Medicine; Professor emeritus, Obstetrics and Gynecology, Mount Sinai School of Medicine. Until 1966, clinical professor, College of Physicians and Surgeons, Columbia University; and lecturer, Harvard School of Public Health. Now president of Planned Parenthood-World Population (Planned Parenthood Federation of America, Inc.).



ALAN F. GUTTMACHER
New York, New York



MONTGOMERY C. HART, M.D.
Kansas City, Kansas

Born, Winnipeg, Canada, 1931. Graduate, University of Manitoba, 1958. Research fellow, American College of Physicians (Dept. of Pharmacology and Therapeutics), University of Manitoba, 1960-1961; Research fellow in medicine (respiratory physiology), Children's Hospital, Boston, and research fellow in pediatrics, Harvard Medical School, 1961-1962; Research fellow in medicine (neonatal physiology), Boston Lying-In Hospital; Research fellow in pediatrics, Harvard Medical School, 1964. Assistant professor of pediatrics; director of Neonatal Laboratory, and director of Newborn Service, University of Kansas School of Medicine, from 1964 to present time.



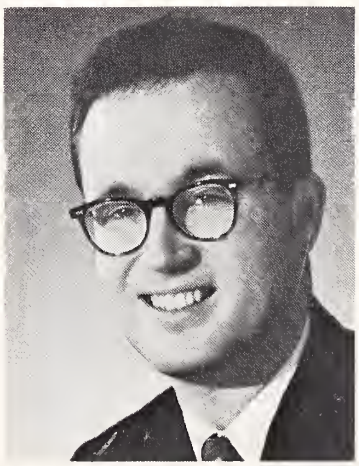
JOHN C. IVINS, M.D.
Rochester, Minnesota

Born, Omaha, Nebraska, 1913. Graduate, University of Nebraska School of Medicine, 1939; M.S. (orthopaedic surgery), University of Minnesota, 1948. Certified American Board of Orthopaedic Surgery. Fellow in orthopaedic surgery, Mayo Graduate School of Medicine, Rochester, 1946-1948. In private practice and consultant in orthopaedic surgery, Mayo Clinic, 1949 to present time. Also associate professor of orthopaedic surgery, Mayo Graduate School of Medicine.



ALAN P. THAL, M.D.
Kansas City, Kansas

Born, Cape Town, South Africa, 1925. Graduate, M.B., Ch.B., University of Cape Town, 1949. Certified, American Board of Thoracic Surgery, 1961; American Board of Surgery, 1957. Assistant professor of surgery, 1956-1959, and associate professor of surgery, 1959-1961, both at University of Minnesota. Professor and chairman, Department of Surgery, Wayne State University College of Medicine, 1961-1966; professor of surgery, University of Kansas Medical Center, and consultant in surgery, Kansas City Veterans Administration Hospital, 1966 to present.



MICHAEL S. USHER, M.D.
Chicago, Illinois

Born, Montreal, Quebec, Canada, 1938. Graduate, McGill University, Montreal, 1962. Diplomate, National Board of Medical Examiners, 1964; Fellow, Royal College of Physicians (Canada), 1967. Diagnostic radiology resident, McGill University, 1963-1964; Internal medicine resident, University of Wisconsin Hospital, 1964-1965; Diagnostic radiology and isotopes, McGill University, 1965-1967. Dr. Usher was appointed Associate in Radiology, Northwestern University, and Associate Director, Nuclear Medicine, Chicago Wesley Memorial Hospital, in October 1967.

Abstracts—

of Papers to Be Presented Tuesday, April 30, 1968

SECTION A—9:00 A.M.

Nuclear Medicine

Michael Usher, M.D., Chicago

Nuclear Medicine, in size and sophistication, is becoming a separate specialty. Nuclear diagnostic procedures are applicable to most organ systems, are safe and accurate in measuring function and morphology.

The introduction of 99m technetium and the Anger Camera make feasible the delineation of blood flow and vascular pools. Cardiac aortic renal carotid and ileac scintiangiograms are simply and safely performed. The placenta can be outlined rapidly with minimal fetal and maternal radiation.

Serial scanning with I^{131} Rose Bengal in combination with Rose Bengal blood retention is useful in differentiating hepatocellular from obstructive jaundice.

The I^{131} Hippuran renogram measures differential renal function and has found widespread application as a screening procedure for renal vascular hypertension and diagnosis of obstructive uropathy.

The functioning renal tubular mass can be outlined by the 203-mercury chlormerodrin scan. Among conditions which produce abnormal scans are renal trauma, infarction, abscess, and tumor.

The procedure of pancreatic scanning with selenomethionine in diagnosis of pancreatitis and carcinoma has not been consistently successful in our laboratory.

The procedures mentioned above will be briefly discussed and examples shown.

Additional Clinical Scanning Procedures

Donald R. Germann, M.D.
Kansas City

Thyroid Studies—the most prevalently used isotope studies in Nuclear Medicine laboratories. Thyroid uptakes can be done with either I^{131} or I^{125}; thyroid scanning can be done with either I^{131} or Tc-99m.

Liver Scans (Static)—the most common isotopes used are the colloidal particles which are picked up and fixed in the reticuloendothelial cells of the liver and spleen. AU198, Tc-99m-tagged sulphur colloid, I^{131} macro aggregated albumin are materials that can be scanned in this manner. I^{131}-tagged Rose Bengal goes to the parenchymal cells and is excreted and is useful in dynamic studies.

Brain Scanning—many isotopes have been used for brain scanning. The most common are mercury-tagged Neohydrin, the Mercury-197 or Mercury-203 is used. However, in most of the larger laboratories Tc-99m has become the isotope of choice.

Lung Scanning—generally done with macro aggregates of serum albumin tagged with I^{131}. This reflects the vascular pattern of the lung. Ventilatory scans can also be done using other particles such as those used for liver scanning. In addition, Xenon may be used to evaluate both profusion and ventilation functions of the lung.

SECTION B—9:00 A.M.

Fetal Asphyxia and Resuscitation of the Newborn

Mieczyslaw Finster, M.D.
New York

Discussed will be recent experiments in asphyxia of animals with and without normal pH; the application of knowledge gained from these experiments in the resuscitation of human newborns; and the correlation between the condition at birth, morbidity and mortality in the neonatal period.

TELEPHONE NUMBER . . . . . 913 CE 3-3484

SECTION C—11:00 A.M.

Detection of Cancer of the Terminal Section of the Bowel

Clyde E. Culp, M.D.
Rochester

Adequate digital and visual evaluation of the rectum and lower sigmoid may be successfully completed as an office procedure. Preparation of the bowel is advisable. Abnormalities detected usually can be sampled for biopsy study without resorting to hospitalization. The techniques of proctosigmoidoscopy are presented as a motion picture.

Cancer Detection in Physician's Office

Lee S. Fent, M.D.
Newton

Cancer therapy is effective in inverse proportion to elapsed time. Only by astute observation and cerebration can the physician discover neoplastic disease in its early stages. This implies that every patient, regardless of complaint, deserves careful scrutiny with regard to the possibility of active or potential cancer. The so-called specific cancer check-up reaches all too few and the physician needs constant reminders to utilize the many simple, but effective, resources available in the course of office examination.

SECTION D—2:15 P.M.

Early and Definitive Management of Severely Injured

John C. Ivins, M.D.
Rochester

At the outset there will be a brief overview of the present situation with regard to "on-site" management of the injured, their rescue and transportation. Emphasis will be placed on some of the present problems. Following this will be a discussion of the initial and definitive care of the injured patient with specific reference to fracture problems.

SECTION E—2:15 P.M.

Legal Abortion With and Without a Law

Alan F. Guttmacher, M.D.
New York

In 47 of the States of the United States, including Kansas, therapeutic abortion is only permitted to preserve the life of the mother. The Kansas statute theoretically prosecutes the abortionist "unless the same shall have been necessary to preserve the life of such woman, or shall have been advised by a physician to be necessary for that purpose." In Colorado, North Carolina, and California the law was liberalized in 1967.

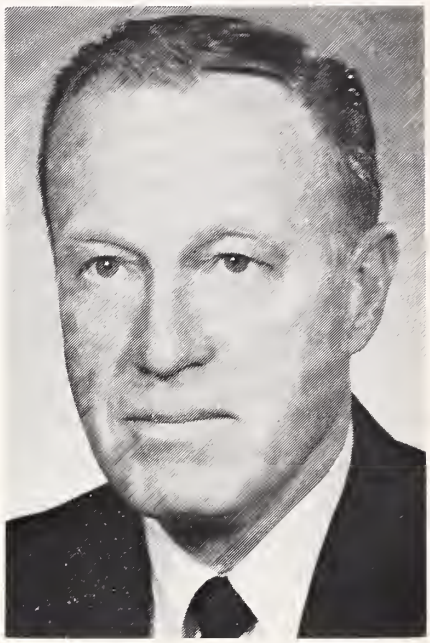
What are the objectives of abortion liberalization? I believe they are threefold. One, reduction in the frequency of illegal abortion; two, elimination of financial and social discrimination in the practice of legal abortion; three, to permit today's physician to practice a high quality of preventive and curative medicine, viewing medicine in the totality of the individual and his relationship to the family.

Using these criteria, the three state revisions fall far short of the goal. Maryland is considering a unique solution to the problem—the removal of all mention of abortion from the penal code, placing abortion wholly under the medical practice act. Physicians could then work out their own ground rules with concurrence of the Board of Medical Examiners, as they do in all other medical matters, eliminating interference by legislators, states' attorneys or police officers. In actuality the proposed regulations envisaged by Maryland medical authorities are too conservative from my point of view. Should all controls on abortion be eliminated except its performance in accredited hospitals by competent physicians? No, not at least yet.

President and President-Elect



George F. Gsell, M.D.
President
Wichita, Kansas



John L. Morgan, M.D.
President-Elect
Emporia, Kansas

Visit the Exhibits!

Hours

Sunday, April 28—1:30 p.m.-4:30 p.m.
Monday, April 29—7:30 a.m.-4:30 p.m.
Tuesday, April 30—8:00 a.m.-4:30 p.m.
Wednesday, May 1—8:00 a.m.-12:00 noon

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION—*Compliments of Berlin Wheeler, Inc., Topeka, and Midland Credit Management, Inc., Hutchinson*

Commercial Exhibits

Exhibits will be open Sunday, 1:30 p.m. to 4:30 p.m.; Monday, 7:30 a.m. to 4:30 p.m.; Tuesday, 8:00 a.m. to 4:30 p.m.; and Wednesday, 8:00 a.m. to noon.

Booth No.

1 **Bristol Laboratories**
Syracuse, New York

2 **Columbian Securities Corporation**
Topeka, Kansas

3 **Wallace Pharmaceuticals**
Cranbury, New Jersey

4 **Modern Office Methods, Inc.**
Topeka, Kansas

5 **Mid-West Surgical Supply Co., Inc.**
Wichita, Kansas

6 **A. G. Edwards & Sons**
Topeka, Kansas

7 **Kansas Blue Shield**
Topeka, Kansas

8 **Ayerst Laboratories**
New York, New York

9 **Creative Systems, Inc.**
Waterloo, Iowa

10 **Smith, Miller & Patch, Inc.**
New York, New York

11 **Medical Protective Company**
Fort Wayne, Indiana

12 **Munns Medical Supply Company, Inc.**
Topeka, Kansas

13 **KaMPAC**

14 **Washington National Insurance Company**
Evanston, Illinois

15 **Group Plans Agency, Inc.**
Kansas City, Missouri

16 **Wm. P. Poythress & Company, Inc.**
Richmond, Virginia

Booth No.

17 **Flint Laboratories**
Morton Grove, Illinois

18 **Loma Linda Foods**
Riverside, California

19 **E. R. Squibb & Sons**
New York, New York

20 **G. D. Searle & Company**
Chicago, Illinois

21 **Coca-Cola Company**
Skokie, Illinois

22 **Parke, Davis & Company**
Detroit, Michigan

23 **Ciba Pharmaceutical Company**
Summit, New Jersey

24 **Pfizer Laboratories**
New York, New York

25 **IBM Corporation**
Topeka, Kansas

26 **Rajkumar Clothiers**
Rockport, Indiana

27 **Paine, Webber, Jackson & Curtis**
Topeka, Kansas

28 **Upjohn Company**
Kalamazoo, Michigan

29 **Lederle Laboratories**
New York, New York

30 **Merck Sharp & Dohme**
West Point, Pennsylvania

31 **Duffens Optical Company**
Topeka, Kansas

The Kansas Medical Society is grateful for
the convention program grant received from

Eli Lilly & Company
Indianapolis, Indiana

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION—*Compliments of Berlin Wheeler, Inc., Topeka, and Midland Credit Management, Inc., Hutchinson*

Scientific Exhibits

Exhibits will be open Sunday, 1:30 p.m. to 4:30 p.m.; Monday, 7:30 a.m. to 4:30 p.m.; Tuesday, 8:00 a.m. to 4:30 p.m.; and Wednesday, 8:00 a.m. to noon.

Booth No.	
32	Kansas Medical Assistants Society
33	Conservation of Hearing and Speech
34	Kansas State Department of Health
35	Dr. John G. Campbell, Shawnee Mission
36	The Menninger Foundation
37	American Cancer Society, Kansas Division
38	Kansas Regional Medical Program
39	University of Kansas Postgraduate Education
40	American College of Surgeons

VISIT YOUR KaMPAC EXHIBIT

Theme: County KaMPAC Batting Average

1. **Averages determined by comparing 1968 KaMPAC membership versus your 1967 county society membership.**
2. **See how your county society compares!**
3. **Make your county average soar by joining KaMPAC *Now* or *At The Meeting*.**

Make 1968 THE BEST KaMPAC YEAR YET!

Program Directory

April 28-May 1, 1968, Ramada Inn

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Montgomery Hart, M.D.	
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Lee S. Fent, M.D.	
Kansas Anesthesiology Society—12:15 p.m.	209
Luncheon—Question and Answer Period—12:45 p.m.	209
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Papers by: John C. Ivins, M.D.	
Alan P. Thal, M.D.	
Alan F. Guttmacher, M.D.	
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WEDNESDAY, May 1, 1968

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A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION.

Items of Interest

- **House of Delegates**
  Exhibition Arena—Sunday and Wednesday
- **Reference Committees**
  Exhibition Arena and The Pub—Monday
- **General Sessions**
  Exhibition Arena—Tuesday
- **Specialty Group Meetings**
  Tuesday and Wednesday

  E.E.N.T. Section
  Kansas Anesthesiology Society
  Kansas Psychiatric Society
  Kansas Association of Coroners

SPECIAL EVENTS

MONDAY

- **Sports Day**
  Golfing—Topeka Public Golf Course
  Bowling—Gage Center Bowl
  Shooting—South Topeka Gun Club
- **Gaslight Party**
  Reception—Lower Lounge
  Dinner—Ballroom

TUESDAY

- **Reception—K.U. Medical Alumni Association**
  Lower Lounge
- **Annual K.M.S. Banquet**
  Ballroom

HEARING TESTS

The Committee on Conservation of Hearing and Speech will have a Hearing Testing Unit available and will be giving tests during the meeting. The unit will be located on the east side of the main building at the Ramada Inn.

Hosts for the Meeting

Topeka Physicians Arranging the 1968 Session

GENERAL CHAIRMAN—RICHARD BEACH, M.D.

Program Committee

Donald W. Selzer, M.D. and John W. Travis, M.D., Co-Chairmen

Commercial and Scientific Exhibits

William Nice, M.D., Chairman

VISIT THE EXHIBITS!

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION.

Sunday Afternoon, April 28, 1968

Ramada Inn

1:30 Registration—Tickets—Information
Lower Lobby

House of Delegates

Exhibition Arena

Thomas F. Taylor, M.D., Salina, Speaker
J. Walker Butin, M.D., Wichita, Vice Speaker

2:15 Registration of Delegates

3:00 First Session

TELEPHONE NUMBER ..... 913 CE 3-3484

Monday, April 29, 1968

Ramada Inn

7:30 Registration—Tickets—Information
Lower Lobby

8:00 Reference Committee on Verification

Exhibition Arena

Reference Committee No. 1

Exhibition Arena

Reference Committee No. 2

The Pub

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION.

THE SHAWNEE COUNTY HOSPITALITY SUITE WILL OPEN AT 4:00 P.M.

SPORTS DAY

Kansas Medical Society Golf, Skeet, and Trap Association

Charles A. Crockett, M.D., Kansas City, President
B. John Ashley, M.D., Topeka, Chairman
Louis Cohen, M.D., Topeka, Chairman, Trapshooting

9:00 Golf—Topeka Public Golf Course, 21st & Urish Road (west of city on 21st Street and south ½ mile on Urish Road)

10:00 Bowling—Gage Center Bowl, 4200 Huntoon (northwest of Gage Shopping Center)

1:00 Skeet Shoot—South Topeka Gun Club (3 miles south of Forbes Air Base on Hwy. 75)

6:30 **Gaslight Party**

Reception—Lower Lounge

Dinner—Ballroom

VISIT THE EXHIBITS!

TELEPHONE NUMBER ..... **913 CE 3-3484**

GASLIGHT PARTY



Where: Ramada Inn's beautiful ballroom

When: April 29, 1968—Annual Sports Banquet

Who: Doctors and their wives are invited

What: Relive those nostalgic days of the "Roaring Twenties" at this gala event with the flappers and outstanding Dixieland musicians direct from the Gaslight Club in Chicago.

TWO LIFETIME MEMBERSHIPS TO THE CLUB GIVEN TO LUCKY PHYSICIANS!

Tickets—$17.50 each, includes sports fees, dinner and show.

Tickets—$10.00 each, includes dinner and show.

Tickets—$25.00, includes sports fees, and dinner and show for sportsman and wife.

Exhibition Arena

MORNING

7:30 Registration—Tickets—Information
Lower Lobby

7:30 Past Presidents' Breakfast
Parlor A

8:30 E.E.N.T. Section
Breakfast and Business Meeting
Parlor B
B. John Ashley, M.D., Topeka, President

SCIENTIFIC SESSIONS APPROVED FOR FOUR (4) HOURS ELECTIVE CREDIT—AMERICAN ACADEMY OF GENERAL PRACTICE

FIRST GENERAL SESSION

Section A

Co-Sponsored by Kansas Chapter, American College of Physicians, and Kansas Radiological Society
Phillip B. Sisk, M.D., Topeka, presiding

9:00 Nuclear Medicine
Michael S. Usher, M.D.
Chicago Wesley Memorial Hospital
Chicago, Illinois

Additional Clinical Scanning Procedures
Donald R. Germann, M.D.
St. Luke's Hospital
Kansas City, Missouri

Section B

Co-Sponsored by Kansas Chapter, American College of Chest Physicians, and Kansas Academy of Pediatrics
Arthur C. Cherry, M.D., Topeka presiding

9:00 Fetal Asphyxia and Resuscitation of the Newborn
Mieczyslaw Finster, M.D.
College of Physicians & Surgeons
Columbia University
New York, New York

Montgomery Hart, M.D.
University of Kansas Medical Center

10:30 Intermission to Visit Exhibits

SECOND GENERAL SESSION

Section C

Co-Sponsored by Kansas Division, American Cancer Society, Inc., and Kansas Chapter, American College of Surgeons
Leslie L. Saylor, M.D., Topeka, presiding

11:00 Digital and Visual Methods of Detection of Cancer of the Terminal Segment of the Bowel
Clyde E. Culp, M.D.
Mayo Clinic and Mayo Foundation
Rochester, Minnesota

Cancer Detection in the Physician's Office
Lee S. Fent, M.D.
Newton, Kansas

VISIT THE EXHIBITS!

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION.

TELEPHONE NUMBER ..... 913 CE 3-3484

April 30, 1968

Ramada Inn

NOON

12:15 Kansas Anesthesiology Society—Luncheon and Business Meeting
Parlor A—*M. Robert Knapp, M.D., Wichita, President*

12:45 Roundtable Buffet Luncheon—Lower Lounge

Welcome—*Donald R. Pierce, M.D., President*
Shawnee County Medical Society

Response—*George F. Gsell, M.D., President*
Kansas Medical Society

Speakers will be present for Question and Answer Period

AFTERNOON

SCIENTIFIC SESSIONS APPROVED FOR FOUR (4) HOURS ELECTIVE CREDIT—AMERICAN ACADEMY OF GENERAL PRACTICE

THIRD GENERAL SESSION

Section D

Co-Sponsored by Kansas Orthopaedic Club, and Kansas Academy of General Practice
Harry G. Kroll, M.D., Topeka, presiding

2:15 Early and Definitive Management of the Severely Injured
John C. Ivins, M.D.
Mayo Clinic
Rochester, Minnesota

Changing Concepts in Heart Disease
Alan P. Thal, M.D.
University of Kansas Medical Center

Section E

Co-Sponsored by Kansas Obstetrical Society and Kansas Psychiatric Society
Peter D. Fleming, M.D., Topeka
presiding

2:15 Legal Abortion With and Without a Law
Alan F. Guttmacher, M.D., President
Planned Parenthood Federation
of America, Inc.
New York, New York

THE SHAWNEE COUNTY HOSPITALITY SUITE WILL OPEN AT 4:00 P.M.

4:00 Kansas Psychiatric Society—Business Meeting—Parlor B

Thomas F. Morrow, M.P., Wichita
President

VISIT THE EXHIBITS!

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION.

TELEPHONE NUMBER . . . . . 913 CE 3-3484

Tuesday April 30, 1968

Ballroom, Ramada Inn

EVENING

Annual Banquet—Kansas Medical Society

5:30 Reception for Physicians and Wives—Lower Lounge
Sponsored by K. U. Medical Alumni Association

7:00 Dinner—Ballroom
George F. Gsell, M.D., Wichita, presiding

Invocation

Introduction of Guests

Oath of Office to Incoming President

Wichita Kiwanis Chorus

Wednesday, May 1, 1968

Exhibition Arena, Ramada Inn

7:30 Kansas Association of Coroners—Breakfast and Business Meeting
Gold Room

Cyril V. Black, M.D., Pratt, President

8:00 Registration—Information
Lower Lobby

9:30 House of Delegates—Second Session
Exhibition Arena

Council Meeting and Luncheon at Conclusion of House of Delegates
Lower Lounge

VISIT THE EXHIBITS!

A COFFEE LOUNGE WILL BE OPEN IN THE EXHIBIT AREA THROUGHOUT THE CONVENTION.

TELEPHONE NUMBER ..... **913 CE 3-3484**

Enjoy an evening with the internationally famous

WICHITA KIWANIS CHORUS



The Wichita Kiwanis Chorus is a unique organization. Made up of business and professional men, this group has not only delighted local audiences but has appeared throughout the central and western states. Traveling over 50,000 miles in the past ten years, the chorus has entertained audiences in such cities as Chicago, Seattle, Little Rock, Oklahoma City, Denver and Colorado Springs and has appeared as a feature attraction in the Hollywood Bowl at Los Angeles.

Not to be confused with the usual "stand up and sing" chorus, this group specializes in fast moving variety entertainment which leaves audiences applauding for more.

The chorus has appeared before hundreds of conventions and meetings in programs varying from 30 minutes to a full evening of entertainment and has produced and appeared in more than 40 performances of an original three-act musical comedy "Wrap It Up."

In a recent pop concert with the 90-piece Wichita Symphony Orchestra the chorus not only delighted the audience with fine choral singing but brought down the house with a hilarious novelty arrangement of Verdi's "Miserere."

Versatile and talented, this group has rightly been called "The Show Troupe That Sings."

ATTEND THE BANQUET—April 30, 7:00 P.M.—BALLROOM

Woman's Auxiliary to the Kansas Medical Society

April 28-May 1, 1968, Ramada Inn

Sunday, April 28

2:00 Hospitality Room—
Lower Lobby, North Lounge

Monday, April 29

8:30 Registration—Hospitality Room—
Lower Lobby, North Lounge

10:30 Past Presidents' Brunch—
Le Flambeau Club

12:30 "Round-Up" Luncheon—Honoring State Officers—
Lower Lobby, South Lounge
Mrs. James McClure, President
Shawnee County Woman's Auxiliary
presiding

2:00 Pre-Convention Board Meeting—
Parlor B, Second Floor

6:30 Gaslight Party—Ballroom

Tuesday, April 30

8:00 Registration—Hospitality Room—
Lower Lobby, North Lounge

8:30 Continental Breakfast—
Lower Lounge, Washburn University

9:30 General Session—
Forum Room, Washburn University

12:15 Receiving Line to Greet Mrs. John D. Dickie, Regional Vice President, Woman's Auxiliary to the AMA

1:00 Godey's Lady's Luncheon—Honoring Mrs. John D. Dickie—Kansas Room, Washburn University
Mrs. Ernest Neighbor
State President, presiding

3:00 Visit Kansas Medical Society Exhibits

5:30 Reception—K.U. Medical Alumni Association—Lower Lounge

7:00 Kansas Medical Society Banquet—
Ballroom

Wednesday, May 1

8:30 Registration—Hospitality Room—
Parlor B, Second Floor

9:30 Post-Convention Board of Directors Meeting—Parlor B, Second Floor

Kansas Medical Assistants Society

April 26-28, 1968, Ramada Inn

Friday Evening, April 26

6:30 Past Presidents' Meeting—Green Room

7:00 Registration—Lower Lobby

8:00 "Roundup"—Lower Lounge
—Courtesy Munns Medical Supply Company

Saturday, April 27

8:00 Executive Board Meeting—Gold Room
Registration—Lower Lobby
Coffee—The Pub
—Courtesy Berlin-Wheeler, Inc.

9:30 Call to Order—Lower Lounge
Dorothy Gunn, Great Bend, President
Kansas Medical Assistants Society

Invocation and Creed
Freida Pierson, Oakley, President-Elect
Kansas Medical Assistants Society

9:45 Welcome
Donald R. Pierce, M.D., President
Shawnee County Medical Society

9:55 Response
George F. Gsell, M.D., President
Kansas Medical Society

10:05 House of Delegates
Maxine Williams, Kansas City
Speaker of the House

12:00 Presidents' Luncheon—Parlor B

1:30 General Session Reconvenes—
Lower Lounge

1:30 **Understanding Care**
Harold Mandl, Ph.D., Topeka
Clinical Psychologist

2:00 **The Certification Program**
Mrs. Mildred Crawford, CMA
San Antonio, Texas
President-Elect, American Association of Medical Assistants

3:00 **Crime Prevention and Ex-Convict Rehabilitation**
Bill Larson, Director
Seven-Step Club Freedom House, Inc.

3:30 **Every Inch a Lady**
Mrs. Martha Smith, Topeka

7:00 Banquet "Beauty Pageant"—Ballroom

Invocation
J. A. Gleason, M.D., Advisor
Shawnee County
Medical Assistants Society

Introduction of Component Society Presidents

Greetings
John E. Sweeney, M.D., Advisor
Shawnee County
Medical Assistants Society

Response and Introductions
Dorothy Gunn, President

Installation of Officers
Virginia Brand, Lawrence
Installing Officer

Speaker—To Be Announced

Sunday, April 28

8:00 Continental Breakfast—Lower Lounge

9:00 Call to Order and Announcements—
Lower Lounge

9:15 Greetings
Fran Bishop, Topeka, President
Shawnee County
Medical Assistants Society

9:30 **Title XIX**
Lucien R. Pyle, M.D., Topeka

10:00 **Medical Use of LSD**
Kenneth Godfrey, M.D., Topeka
Staff Psychiatrist, V.A. Hospital

10:30 To Be Announced

12:00 Luncheon "Picnic"—Ballroom

Invocation
G. B. Joyce, M.D., Advisor
Shawnee County
Medical Assistants Society

Building Bridges in Troubled Times
Rev. Donald Bakely
Kansas City, Missouri
Executive Director
Cross-Lines Cooperative Council

Kansas Society of Medical Technologists
Kansas Society of Pathologists

May 1, 2, 3, 1968

Howard Johnson's Motor Lodge, Topeka

Wednesday, May 1

10:00 Workshop in Coagulation Procedures
Washburn University
(This workshop will be sponsored by Dade Reagents, Inc. Registration must be limited to first 20 applicants who are KSMT members. Only one participant from a hospital or clinic can be accepted.)

Thursday, May 2

8:00 Registration

9:00 Opening of Convention

Invocation
Rev. D. A. Morrison
Seabrook United Church of Christ
Topeka

Welcome to Topeka
Mayor Charles Wright

Greetings
C. G. Hermann, M.D.
President of KSP, Topeka
Miss Phyllis Boyle, M.T. (ASCP)
President of KSMT, Kansas City

9:15 The Use and Abuse of LSD
Kenneth E. Godfrey, M.D.
V.A. Hospital, Topeka

9:45 The Salmonella Problem
V. D. Foltz, Professor of Bacteriology
Kansas State University, Manhattan

10:15 Coffee and View Exhibits

10:45 A Look at Legislation
"The Lobbyist Looks at the Legislature"
Miss Mary Turkington
Acting Managing Director
Kansas Motors Carriers' Association, Topeka
"The Present Status of Laboratory Legislation in Kansas"
Miss Doris Brown
M.T. (ASCP), LL.B.
University of Kansas Medical Center

12:00 Luncheon
Medical Technology Students

1:30 Business Meeting

3:00 Coffee and View Exhibits

3:30 Business Meeting

6:30 Social Hour—Banquet

Friday, May 3

8:00 Registration

9:00 Quality Control
J. Allen Sanders, M.D.
Lawrence Memorial Hospital
Lawrence

9:30 Fibrinolysis
Capt. Howard N. Ward, M.D.
Forbes AFB Hospital, Topeka

10:15 Coffee and View Exhibits

10:45 Acid Base Balance
W. W. Scammon, M.D.
Lattimore-Fink Laboratories, Topeka

11:15 Eye Diseases
Bradford S. Prokop, M.D.
Topeka Medical Center

12:00 Buffet Luncheon

1:30 Enzyme Tests Related to Heart Disorders
O. L. Hanson, M.D.
Santa Fe Hospital, Topeka

2:00 Ceruloplasmin
Sherman S. Wilson, Research Chemist
V.A. Hospital, Topeka

2:30 Toxicological Testing
B. L. Glendening, Ph.D.
Kansas State Board of Health, Topeka

3:00 Chemical Profiles in Health and Disease
Antonio Huaman, M.D.
Lattimore-Fink Laboratories, Topeka

Report of the Council

Summary of Meeting Held January 21, 1968

The Council met on Sunday, January 21, 1968, at the Ramada Inn in Topeka, beginning at 10:00 a.m.

Present were: G. F. Gsell, President; F. T. Collins, J. A. McClure, J. L. Morgan, L. R. Pyle, L. N. Speer, J. W. Butin, O. R. Clark and J. C. Mitchell. *Councilors and Alternates:* D. L. Berger, J. N. Blank, V. D. Brown, C. C. Conard, R. F. Conard, H. F. Coulter, E. W. Crow, Richard Glover, R. W. Hughes, M. R. Knapp, R. C. Lawson, R. C. Long, W. E. McAllaster, R. R. Melton, G. L. Mowry, P. M. Platten, W. G. Rinehart, Alex Scott, E. T. Siler, B. G. Smith, M. O. Steffen, and F. P. Wolff. Chairmen of *Commissions:* D. E. Gray, K. L. Graham and J. G. Lee, Jr. Representing *Specialty Societies:* C. V. Black, R. C. Knappenberger, William Nice, J. H. Rohr, Ed Steichen and Sam Zweifel, Jr. Also present were: T. P. Butcher, A. C. Cherry, H. S. Dreher, H. T. Gray, C. C. Gunter, C. G. Hermann, J. E. Hill, W. R. Lentz, L. S. Nelson, L. W. Reynolds, J. L. Salomon, Joseph Satten, E. B. Scagnelli, G. R. Stone, J. W. Travis, and J. D. Walker. Representing *Kansas Blue Shield:* R. K. Purves, President, Messrs. Proctor Redd and Herman Skelton. Also present were Mr. Dwight Allen, Sedgwick County Medical Society; Mr. R. E. Selbach, Shawnee County Medical Society; Mr. Gene Wilcox, Butler-Cowley County Medical Society, and Messrs. Oliver Ebel and R. G. Swenson, Kansas Medical Society.

The following is a brief report of subjects discussed and action taken by the Council. The complete minutes are on file in the Executive Office.

1. Approved that the money collected by special assessment to assist in the blood bank litigation be submitted to the law firm as requested in a letter from David M. Gibson, M.D., St. Luke's Hospital, Kansas City, Missouri.

2. The president of Kansas Blue Shield announced that Blue Shield was taking many considerations relating to prevailing charge problems directly to the review committees. He stated that as of January 1, the Kansas Relative Value Studies identification code numbers were to be used in all Blue Shield claims.

The sponsorship of drug coverage by either Blue Cross or Blue Shield was discussed and it was reported by Dr. Gsell that the Executive Committee met recently with the Kansas Pharmaceutical Association, and the pharmacists did not know what kind of pre-payment insurance they wanted. On the basis of this information a motion was made, seconded and carried, that the Council re-affirm its previous motion to table this question at least until more information is available from the Pharmaceutical Association.

Direct payment to podiatrists for services rendered under Blue Shield was discussed. It was stated that the range maximum for their services would comply with the range maximum for similar procedures established by orthopedists. It was moved and seconded that this subject be discussed at the various Blue Shield Relations committee meetings. Motion carried.

Legislative Council proposal No. 9 relating to additional consumer representatives on both the Blue Cross and Blue Shield boards was discussed. The Legislative Council recommends that at least half of the members on each board shall represent consumers and that additional lay board members shall be appointed by the governor. Blue Shield proposes that the additional appointments be made through the Subscribers Council. The motion, which was made and seconded, that the Council does not oppose an increase of lay members to the Kansas Blue Cross and Blue Shield boards, but strongly favors that these appointments be made through the Subscribers Council was approved.

3. The Council also looked at and approved several resolutions which appear in the report of the commission to which they apply.

4. Dr. Gsell announced that KHFIS would disband in April because of the failure of federal agencies to renew their grants. A motion was made, seconded and approved, that the Council strongly encourage local medical societies take immediate action in cooperating with other community groups in developing voluntary area-wide comprehensive health planning groups in their areas.

5. The chairman of the Committee on Conservation of Eyesight reported on a meeting held by a subcommittee with officers of the Kansas Optometric Association. He reported that the two groups were working together on Title XIX and that Senate bills 82 and 83 were being replaced with a statement declaring that governmental and private agencies shall not discriminate between optometrists and ophthalmologists. He also stated that it is now ethical for opthalmologists and optometrists to share

(Continued on page 220)

Councilor Reports

Activities in the Councilor Districts of Kansas

DISTRICT 1

This has been a busy year for all physicians. Hospitals and offices are busy places. The additional paper work is irritating to many. We have a shortage of practicing physicians in several places in this northeastern part of the state. Some of our good towns could use more general practitioners, internists and pediatricians, as well as other specialities.

The activities of the district were confined to a meeting of the doctors and their wives at the Maple Leaf Restaurant in Hiawatha on October 5, 1967. About 30 doctors and their wives were present for the dinner.

Mrs. Ernest Neighbor, president of the Woman's Auxiliary to the Kansas Medical Society, addressed the women in a separate meeting.

Dr. John Morgan, President-Elect, gave the doctors a very lucid summary of current policies and problems of the Kansas Medical Society.

Dr. Lucien Pyle, medical co-ordinator to the Welfare Department reported that Title XIX is in operation and many problems are arising but many difficulties are being handled in a fairly good way. Several of the doctors are impatient with long delays and duplication of forms.

Oliver Ebel, Executive Secretary, brought us up-to-date on some of the thinking of the Kansas legislators.

Dr. Conrad Barnes, a past president of the Kansas Medical Society, one of our outstanding family physicians, passed away March 4. He will be greatly missed.

VIRGIL E. BROWN, M.D., *Councilor*

DISTRICT 2

The second district of the Kansas Medical Society has functioned with quite acceptable efficiency during the past year. Besides the usual functions, several things are worthy of note.

On April 16, 1967, the Wyandotte County Medical Society sponsored a community "End Measles Day," with the assistance of the City-County Health Department.

The Wyandotte County and Johnson County societies were co-hosts of the annual meeting of the Kansas Medical Society, held at the Town House Hotel, April 31-May 3, 1967.

Dr. C. L. Francisco was elected as alternate councilor for the district.

Adequate emergency-receiving facilities in Wyandotte County have been an old and recurring problem for years. Some sentiment has been expressed in the county for the establishment of an emergency hospital. A committee has been appointed and is now surveying the membership and exploring the various possibilities with regard to upgrading and centralizing the emergency facilities. This study is continuing.

The Wyandotte County Society was honored to have Dr. Gsell as the speaker at the district meeting which was held November 21, 1967.

During the year, the society was saddened by the loss of six members by death: L. Lafe Bresette, George M. Richards, Lennart B. Mellott, Earl R. Millis, William P. Williamson and Fred C. Young.

JAMES G. LEE, JR., M.D., *Councilor*

DISTRICT 3

The affairs of the third councilor district in the past year have been fairly well in order. The councilor or his alternate have attended all meetings of the Council and have attempted to inform the membership. Several requests have come from the State Selective Service as to the essentiality of physicians in the area. General practitioners and many specialists are in exceedingly short supply in this area with its burgeoning population. A few physicians have ceased practices here or curtailed their practices because of health problems or geographical location.

This councilor has enjoyed serving the third councilor district.

DAN L. BERGER, M.D., *Councilor*

DISTRICT 4

Our fall meeting was held October 26, 1967, at the Besse Hotel, Pittsburg. Social hour was followed by dinner and the presentation of the guest speakers. Speakers of the evening were Dr. George F. Gsell, president of the Society, and Dr. Lucien R. Pyle, Kansas state coordinator with the Society, Medicare, Welfare, and Title XIX. In addition, comments were made by Swede Swenson, of the Executive Office, and Jess Prisock of Kansas Blue Cross-Blue Shield. Mrs. Ernest G. Neighbor, Shawnee Mission,

president of the Auxiliary, as well as Mrs. O. L. Hanson, president-elect of the Auxiliary, were present and made a few remarks at the meeting. Dr. Joseph Waxse, Oswego, was selected as alternate councilor of the fourth district.

As far as our district is concerned, we are extremely short of doctors. We are aware that this is a state-wide situation and we are hoping that our medical schools can increase the number of graduates to help this situation. As far as the doctors with Blue Cross and Blue Shield and Title XIX are concerned, for the most part we do not seem to have any problems that cannot be dissolved easily. All in all, our district, medically speaking, is in no position to present unusual problems.

W. G. Rinehart, M.D., *Councilor*

DISTRICT 5

The association with the fine practitioners in my district has been very pleasant and rewarding this year. Their support for the councilor's dinner meeting in October was excellent and deeply appreciated.

Several trouble-shooting missions were necessary in the district this year. Inter-professional failure of communication has been the basis of most difficulty. Surely I speak concordantly with other councilors when I urge personal and professional problems be resolved, first man-to-man; next at the county society level. Resolution failing here, Council attention should be solicited promptly, before mediation becomes more difficult. Midway in my second councilor term, I have the "clinical impression" that local societies want more support and backing from the Council in matters of local discipline. Slowly and cautiously the State Society is moving in this direction, in my opinion, primarily because failure to govern (and police) our own organization can invite less capable agencies to intervene—a situation already too familiar to us.

Finally, be honest, considerate, candid and kind to your fellow man and your fellow physician. The world needs direction desperately; let Medicine continue to point the way.

Alex Scott, M.D., *Councilor*

DISTRICT 6

District 6 (Shawnee County Medical Society) has had an exciting and busy year.

We were saddened by the deaths of Norman Anderson and John Lattimore. Both of these physicians were active in local medical affairs. Dr. Lattimore's death will cause a large void in the Kansas Medical Society. Our medical community will miss the associations of Drs. Anderson and Lattimore.

The program committee was unusually active this year and all the programs have been outstanding in scientific fields. Many varied topics and interesting speakers were enjoyed.

The Medical Society Auxiliary presented the community health fair under the direction of Mrs. James McClure, assisted by Mrs. Pyle and Mrs. Sherwood. This was held at the Mid-American Fair grounds on November 1 through 3, 1967. More than 40 health and health related organizations participated. Approximately 5,600 persons attended the fair. One thousand four hundred had blood tests taken for diabetes detection; 3,000 blood pressures were obtained and 1,300 chest x-rays taken. Nine hundred people were blood typed. Any positive findings were referred to their family physician. Many panel discussions were held and were well attended. A large portion of physicians of Shawnee County participated in the programs.

There has been good cooperation between the City Board of Health and Shawnee County Medical Society. In 1966 a total of 2,913 children were immunized for measles. The follow-up on this has resulted in a reduction of measles outbreak in the city of Topeka. Many of our physicians routinely contributed time to the Well Child Conferences and advised the Public Health nurses on a regular basis.

The medical society has cooperated with the Board of Health and Shawnee County committee on long-term health care facilities under the able direction of Dr. Jack Segerson. This report was well received by the medical society as well as the Nursing Home Planning Council. There was an integrated effort to fuse programs, personnel facilities for a long term care of community patients. All interested parties should review this report.

Shawnee County Medical Society was privileged to elect to membership in the 85/50 Club, Dr. Karl A. Menninger for practicing medicine for 50 years. Dr. Menninger's contributions to the Shawnee County, Kansas, and national medicine have been unique.

The Legislative Committee under the able direction of Dr. Art Cherry has been extremely active in meeting with and counseling legislators on problems that relate to medicine. District 6 is again proud to be able to be available for medical services to Legislators and their families during their residence in Topeka.

Our members have voluntary assessments in addition to dues to help support the Stormont Medical Library. The library continued to expand its function and increase in growth. This is under the able medical direction of Dr. James Mott. The library is situated in the Stormont-Vail Hospital and is a service not only to our medical society members but to a large number of para-medical people. This so-

ciety continues its policy of providing subscriptions of *Today's Health* to all junior and senior high schools in the county.

The society still offers telephone answering service to all members. The physician's answering service offers help in selecting a family physician or help in an emergency. We are still strong in our support of AMPAC and KaMPAC as well as the Topeka Science Fair.

The blood bank committee has worked out a program for community implementation as result of the meeting of the board of directors with the American Red Cross. We will be able to provide better blood services to the people of this community.

We wish to thank Ray Selbach, executive secretary of the Shawnee County Medical Society, and his staff for their excellent cooperation in their work, making it easier for the doctors to handle some of their extra-curricular activities.

R. C. Lawson, M.D., *Councilor*

DISTRICT 7

A meeting of the seventh district was held in Emporia in November 1967 at which time we were honored by the presence of Dr. George Gsell.

Recently, in February, there has been a meeting of the District 7 Blue Shield Relations Committee. Of primary interest to the membership is the proposal for verification of the prevailing charge. No great opposition has been voiced in this council district to the proposal. However, it is the feeling that we should proceed cautiously.

The hospitals in this area are showing an unusually high census and we are beginning to suspect that a serious bed shortage may shortly develop. Utilization committees are meeting actively. However, it does not appear that they can be very effective when there are no approved extended care facilities available to which the Medicare patients could be transferred.

One of our members has recently joined the armed forces and will be out of practice for two years or more. There have been no other changes in the number of physicians practicing in the area. The physicians of this council district are quite interested in the activities of the Kansas Medical Society and our delegates will show an active interest, I am sure, at the annual meeting.

Richard F. Conard, M.D., *Councilor*

DISTRICT 8

The component societies of the eighth district (Cowley, Chautauqua, Butler, Elk and Greenwood), presented no special problems to their councilor during the year.

The society meetings in Butler and Cowley counties were well attended this year. The circuit courses of the University of Kansas Medical Center held in Arkansas City this year were well attended by physicians from Kansas and Oklahoma.

The district eight meeting was held in Arkansas City, November 9, 1967, with another good attendance. We were honored by the presence of our president, Dr. George Gsell along with Dr. Lucien Pyle, Mr. Oliver Ebel and Mr. Jess Prisock. Dr. Gsell, Dr. Pyle, Mr. Ebel and Mr. Prisock, discussed Title XIX Law as it is now in operation in Kansas; Welfare Programs; Regional Medical Programs; Comprehensive Health Planning; and Blue Shield Plans.

We were also honored by the presence of Mrs. Ernest Neighbor, president of the Woman's Auxiliary to the Kansas Medical Society and Dr. Ernest Neighbor.

During the year, a local committee was organized in Cowley County to work with the Regional Medical Center at the University of Kansas Medical Center to develop a local program under Heart, Cancer and Stroke Plan.

I wish to personally thank each and every member of the eighth district for their help and cooperation during the year.

Bruce G. Smith, M.D., *Councilor*

DISTRICT 9

During the past year, there have been no major problems in the ninth council district.

In November 1967 the annual council district meeting was held in Salina, at which time Dr. Gsell led a discussion of various problems including Medicare, Blue Shield, etc.

Members of the district have been informed of activities of the Council by report following each meeting.

S. C. McCrae, M.D., *Councilor*

DISTRICT 10

Council District 10, composed of Marion, McPherson, Harvey, Reno and Rice county societies has been active. Reno County started the fall meetings off with their meeting at Prairie Dunes Country Club with Dr. Frank Masters, plastic surgeon of the University of Kansas Medical Center, as speaker. Physicians and their wives from the surrounding counties

were invited and enjoyed Dr. Masters' slides and descriptions of his work in India.

Scientific programs have been held at regular intervals by the component societies. Postgraduate circuit courses have been well attended.

McPherson County was successful in obtaining Hill-Harris funds for their hospital project.

Harvey, McPherson, and Marion county societies have held their traditional combined meetings three times during the year.

More general practitioners are needed in several communities.

The Council has met on several occasions to attend to State Society business that accumulates. There are problems with Title XIX and Title XVIII of the Social Security Act, Blue Shield Customary Charges, Plans for Auditing, etc., plus a legislative session.

Your state officers and central office put in an enormous amount of work. Good relationship exists with the State Social Welfare Department and other agencies with which our Society works.

Attend your county society meetings and the State meeting at Topeka at the Ramada Inn starting on Sunday, April 28 and ending May 1, 1968.

RALPH R. MELTON, M.D., *Councilor*

DISTRICT 12

Medical affairs in the 12th district have been fairly quiet this past year. This district is composed of two societies—Pratt-Kingman, and Tri-County, which is composed of Sumner, Barber, and Harper counties.

Two doctors have died and one has moved away. A radiologist is coming to Pratt from another district. The physician population continues to decline.

A district meeting was held in Harper and attended by Dr. Gsell, President, and representatives of Blue Shield. Information from state officers was forwarded to component county societies. Councilor letters were sent to the membership by means of facilities of the state office.

F. P. WOLFF, M.D., *Councilor*

DISTRICT 13

The 13th councilor district, which includes Ellis, Ellsworth, Graham, Osborne, Phillips, Rooks, Russell, Smith, and Trego counties, has had a relatively quiet year.

The councilor was requested to make two investigations and reports to Selective Service, one of which resulted in reclassification as essential to the area. The other case has not been reported up to the present time.

The councilor has attended all Council meetings and the annual meeting of the Society.

No councilor meeting has been held for the year up to the present time, due to conflicts in scheduling.

No major problems were forthcoming in the past year.

As a freshman councilor, the past year has been both interesting and enlightening, and the next two years appear to hold the same promise.

EUGENE T. SILER, M.D., *Councilor*

DISTRICT 15

Medical manpower has remained fairly static over the 15th district for the past year. There have been some gains in several of the specialties while the losses are represented in general practice. There still remain favorable openings in several specialties. The combined social-business highlight of the year was the annual district meeting held in Meade in October. A very excellent representation from all of the component societies was present to hear Dr. Gsell and Dr. Pyle discuss problems peculiar to the State Society, Blue Shield and Medicaid. Mrs. E. G. Neighbor ably represented the Woman's Auxiliary. The problems bringing the most discussion in the district have been the mixup in the Prevailing Charge Plan fees under Blue Shield, Medicare, Medicaid, utilization review committees and the continued requirement of membership in the American Medical Association.

R. H. HILL, M.D., *Councilor*

DISTRICT 16

The 16th council district comprises the counties in the northwest corner of the state. The doctors and their wives met at Colby on the evening of October 15, 1967, to hear Dr. George F. Gsell, president of the Kansas Medical Society and Mrs. Ernest G. Neighbor, president of the Woman's Auxiliary to the Kansas Medical Society. Dr. Gsell spoke concerning some of the problems facing the doctors of Kansas in the coming year and Mrs. Neighbor met with the auxiliary and discussed their program for the coming year.

Your councilor, as well as many other members of the Society in this part of the state, has been concerned with the number of physicians that have left this area in the past year. Six active practicing physicians have left the district and only two have come into the district.

Some work has been done on a regional health plan for the area but apparently much more needs to be done before anything definite can be expected along this line.

All but two counties in this district are now participating counties in the High Plains Mental Health Clinic. This clinic makes available both inpatient and outpatient psychiatric services to anyone within the participating counties. This type of service has long been needed in this part of the state.

We are also proud of the achievements of the people of Norton, Kansas, one of the communities in our district. Through their efforts an alcoholic treatment center has been established that will probably be a model for the whole state of Kansas. This community has also done much to make a success of a treatment center for retarded children established a few years ago.

JAMES J. MARCHBANKS, M.D., *Councilor*

Council Meeting

(Continued from page 215)

offices, provided each is properly identified by his degree or title.

6. The editor of the JOURNAL reported an internal revenue service regulation which declares income of professional journals to be taxable in the years beginning after December 12, 1967. He stated that the Editorial Board is attempting to obtain further information and that a more complete report will be made at a later date.

7. Dr. J. A. McClure reported on Title XIX and meetings held by the Advisory Committee. He also reported on meetings held with members of the Board of Social Welfare and that a greater degree of understanding has been attained between the medical profession and Welfare.

8. Dr. L. R. Pyle, Medical Coordinator to Welfare, reported on his work which consists largely of the preparation of the Manual of Guidelines to be followed on Title XIX. This proposal will be submitted to the Medical Advisory Committee prior to presenting it to the Board of Social Welfare.

9. Dr. F. T. Collins, chairman of the Committee on Utilization Review, stated that the government is now exerting considerable pressure upon hospitals to make their utilization review committees effective. He hopes to prepare some guidelines through the work of his committee and will send these to all hospitals as soon as they are completed.

10. Dr. Collins, as medical advisor to the Kansas Selective Service Board, announced that 11,000 physicians will be called into the Armed Services during this coming year. Kansas has not yet been given a quota but Selective Service will look to all who are completing their internships and residencies; there will be more pressure in the future.

11. Dr. Gsell requested councilors to write letters to their districts and stated the Executive Office would reproduce these letters, address envelopes and send them back to the councilor for mailing.

House of Delegates

Sunday—April 28

3:00 p.m.—Exhibition Arena

Wednesday—May 1

9:30 a.m.—Exhibition Arena

Reference Committees

Monday—April 29—8:00 a.m.

Committee on Verification—Exhibition Arena

Committee No. 1—Exhibition Arena

Committee No. 2—The Pub

Resolutions

To Be Presented to the House of Delegates, April 28, 1968

THE COUNCIL

RESOLUTION NO. 1

(Prepared by the Committee on Nursing—F. T. Collins, M.D., Chairman. Submitted by the Council.)

Guideline for Joint Policy Statement on Nursing Service

Be It Resolved, That the following statement be adopted.

Introduction

Efficient and effective health care of people in our present society of fast changing advances in the social and physical sciences, calls for a mutual concern on the part of doctors, hospitals, and nurses. In Kansas this concern has been alive for several years.

Representatives of the Kansas Hospital Association, the Kansas Medical Society, and the Kansas State Nurses' Association have met on several occasions to discuss matters concerned with the quality of patient care. Although these meetings have been held informally and infrequently for several years, a need for a Liaison Committee has been seen. On July 21, 1966, such a committee was formed and held its first meeting at the KSNA office in Topeka, Kansas.

Foreword

Medicine and nursing are two separately recognized professions by law. The distinction between medical and nursing practice as described in the statutes in the abstract appears quite clear; yet the precise lines between the two areas of practice, when specific procedures are considered, are not easy to find.

A few decades ago there would have been very little overlapping in medical and nursing functions. Today the definitive characteristics are not so evident. In some instances, nurses have no question about proper action; in other gray areas, however, they need to know that they are carrying out proper dependent nursing functions and that they have the support of medical and nursing authority.

Problems of practice within the dependent area of nursing functions are best approached by joint study by the professions involved.

Concern for the health and well being of patients is an ethical responsibility which the nurse shares with the doctor and the hospital or other agency. To assume this responsibility and to insure that the highest standards of patient care are maintained, the following material has been developed to serve as a guideline.

Legal Aspects

Certain factors can be defined without question and are self evident. By way of example, without attempting to be complete, are the following:

1. Kansas Statutes Annotated 65-2869. Classes or persons deemed engaged in practice of medicine or surgery:

a. Persons who publicly profess to be physicians or surgeons, or publicly profess to assume the duties incident to the practice of medicine or surgery or any of their branches.

b. Persons who prescribe, recommend or furnish medicine or drugs, or perform any surgical operation of whatever nature by the use of any surgical instrument, procedure, equipment, or mechanical device for the diagnosis, cure or relief of any wounds, fractures, bodily injury, infirmity, disease or illness of human beings.

c. Persons who attach to their name the title M.D., surgeon, physician, physician and surgeon, or any other word or abbreviation indicating that they are engaged in the treatment and diagnosis of ailments, diseases, or injuries of human beings.

2. Kansas Statutes Annotated 65-2872. Classes or persons not engaged in the practice of the healing arts:

a. Persons rendering gratuitous services in the case of an emergency . . .

b. Persons whose professional services are performed under the supervision or by order of or referral from a practitioner who is licensed under this act . . .

c. Nurses practicing their profession when licensed and practicing under and in accordance with the provisions of Article 11 of Chapter 65 of the General Statutes of 1949, or amendments thereto, and any interpretation thereof by the supreme court of this state. . . .

3. Kansas Statutes Annotated 65-1113.

Definitions. When used in this act:

a. "Board" means the board of nursing.

b. "Practice of nursing." (1) The practice of professional nursing means the performance for compensation or gratuitously, except as permitted by section 65-1124 of the General Statutes of 1949, as amended,

of any act in the observation, care, and counsel of the ill, injured, or infirm, or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or the administration of medications and treatment as prescribed by a licensed physician or dentist; requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical, and social science. The foregoing shall not be deemed to include acts of diagnosis or prescription of therapeutic or corrective measures. (2) The practice of practical nursing means the performance for compensation or gratuitously except as permitted by section 65-1124 of the General Statutes of 1949, as amended, of such duties as are required in the care of the ill, injured or infirm under orders as prescribed by a licensed physician or licensed dentist or directions issued by a registered professional nurse, the performance of which requires a knowledge of simple nursing procedures but not requiring the professional knowledge, judgment and skills required for professional nursing.

c. A "professional nurse" means a person who practices professional nursing as defined in paragraph (b) (1) of this section.

d. A "practical nurse" means a person who practices practical nursing as defined in paragraph (b) (2) of this section.

Legally, the registered professional nurses must function in accordance with this Kansas statute.

4. Nurses, although acting upon the prescribed direction of a licensed physician, are nevertheless responsible for their acts in the performance of their professional duties.

5. The nurses are aware of their obligation to themselves, to their profession, to the physician under whose direction they work and to the patient they serve, not to attempt the performance of any professional care which is beyond their skill or understanding.

6. It is the ethical duty of nurses, when directed by a physician to perform a service which is believed to be beyond their skill or understanding, to notify their supervisor or employer. This should be interpreted to mean that a nurse who in conscience feels she cannot perform the service has the right and duty to refuse to do so.

7. The in-service training program is responsible for the additional preparation for unusual or specialized procedures.

State Nursing Liaison Committee

The Joint Committee recommends to its respective organizations that a committee be organized on which shall serve three representatives from each of three organizations and that this committee be given the following charges:

1. To develop and publish appropriate statements of policy designed to assist in the determination of the respective professional responsibilities in patient care and treatment.

2. To encourage organization of a local committee in each health care facility in Kansas to develop statements of policy specifically tailored to the local personnel, facilities and needs for patient care and treatment.

3. To assist local nursing liaison committees in the development of their local statements of policy.

4. To serve as a state-wide co-ordinating and consultant body to the local committees.

5. To recommend to the sponsoring associations amendments to or revisions of these guidelines whenever needed.

Local Nursing Liaison Committees

It is recommended that the local committee of a health care facility have representatives of the professional staff, the department of nursing, the department of nursing education, if any, the administrative staff, and the representatives of those responsible for the in-service training program.

Further, it is recommended that in developing its written policy statement, the local committee take into consideration the following conditions:

1. Specific procedures to be performed by the nurse upon order of a licensed physician or dentist for specific patients.

2. The nurse have competent instruction and training in the procedures to be performed.

3. Competence of a nurse to perform such procedures to be determined by the nursing service department of the facility.

4. The nurse to be trained for giving emergency first aid when required due to the non-availability of a licensed physician or dentist.

5. The local committee not to exercise decision-making powers but to make recommendations for consideration by the appropriate governing authority.

RESOLUTION NO. 2

(Submitted by the Council.)

Nurse Education

WHEREAS, The American Medical Association is on record to "continue its support of all current nationally approved educational programs for nurses": and

WHEREAS, The national trend which is supported by the professional nurses' associations appears to be gradual phasing out of the diploma schools of nurs-

ing and the transfer of nursing education to collegiate institutions; and

WHEREAS, Seventy (70) per cent of nursing care at the present time is rendered by graduates of diploma schools with the demand for such nurses continuing to exceed the supply; and

WHEREAS, There is general professional agreement on the need for inclusion of nursing education in community health planning with provision for greater use of in-hospital training as well as training in collegiate institutions; therefore be it

Resolved, That the Kansas Medical Society reaffirm its support of all forms of nursing education including baccalaureate, diploma, associate, and practical nurse education programs; and be it further

Resolved, That those hospitals that conduct diploma schools of nursing be commended for the great contribution being made by these institutions to the health needs of the nation; and be it further

Resolved, That such hospitals be urged to continue their schools and increase enrollment while allowing the individual to choose the kind of nursing education he or she desires.

RESOLUTION NO. 3

(Prepared by the Committee on Child Health. Submitted by the Council.)

Handicapped Children

WHEREAS, The State of Kansas has a tax funded medical program, the Kansas Crippled Children's Commission, that is responsible for rehabilitation to selected children afflicted with a hare lip, cleft palate, congenital cataract or with congenital or acquired cardiac defects, which can be corrected or materially improved by surgery, or an orthopedic condition or deformity that can be cured or materially improved. The orthopedic condition or deformity referred to above shall include any deformity or disease of childhood generally recognized by orthopedists and by the medical profession as falling within the field of the orthopedic surgeon, and it shall include infantile paralysis and deformities resulting from burns. It shall not include recent fractures. This excludes other children of Kansas that may not have one of the aforementioned defects but have an equal or more severe disability; and

WHEREAS, This program is administered by an appointed body that acts with medical direction, supervision, council and formulation; therefore be it

Resolved, That the president of the Kansas Medical Society recommend to the governor of the State of Kansas that:

1. The medical director be encouraged to initiate, co-ordinate, and supervise appropriate programs for the benefit of handicapped children.

2. An advisory council to the medical director be established, this council to consist of appropriate resource physicians whose function would be to supply the director with information and advice.

3. That thoughtful consideration be given to the methods of determination of eligibility for care.

4. That the Kansas Crippled Children's Commission add to its program other conditions.

5. That the medical director continue to be on a part-time basis until such time as the program be expanded to require the services of a full-time director.

RESOLUTION NO. 4

(Prepared by the Committee on Maternal Health and approved by the Commission on Scientific Study. Submitted by the Council.)

Abortions

Be It Enacted by the State of Kansas that any person or persons other than a physician licensed to practice medicine and surgery in the State of Kansas and within a licensed and accredited hospital who terminates a pregnancy of another otherwise than by live birth shall be deemed guilty of manslaughter in the second degree.

RESOLUTION NO. 5

(Prepared by the Committee on Mental Health. Approved by the Council.)

Citizenship

Be It Resolved, That the Board of Healing Arts be permitted to grant temporary and restricted license to any physician of foreign citizenship, who may be otherwise fully qualified by examination to practice medicine and surgery, to practice in an area or institution where a public need may be deemed to exist. Such license shall be renewable annually at the discretion of the Board of Healing Arts.

RESOLUTION NO. 6

(Adopted by the Council, January 21, 1968, for submission to the House of Delegates.)

Verification of Professional Charges

WHEREAS, The Kansas Medical Society favors third party payment to physicians according to their usual and customary charges rather than payment

by set fee schedules whether based upon the Kansas Relative Value Studies or established by any other method; and

WHEREAS, The usual and customary concept is preferable to any presently known method of third party payment even with the limits imposed under range maximum controls; and

WHEREAS, The continuation of this payment concept depends upon the presentation of substantial evidence that third parties do not pay a greater fee than the physician charges his average private paying patient for a comparable professional service; and

WHEREAS, The Council was directed to submit to the House of Delegates in 1968 a method to verify that fees filed and approved by Blue Shield are in fact not higher than the charges customarily made by the physician; therefore be it

Resolved, That

1. Such audits be performed by the Kansas Medical Society.
2. Any audits be made by members of this Society, and that such audits be made only to examine the charges made by members of this Society.
3. Doctors so involved be compensated for their time and travel expenses.
4. A public accountant shall accompany the examining doctor.
5. Such audits be available only to agencies with whom the Society has "usual and customary" fee contracts.
6. The Executive Committee of the Council be responsible for implementation and operation of this program, to include the choice of inspecting physician, the physician to be audited, and the reports to be provided to the requesting agency.

RESOLUTION NO. 7

(Submitted by the Council.)

Voluntary Community Health Planning

WHEREAS, The Kansas Health Facilities Service is discontinued; and

WHEREAS, Comprehensive health planning under the direction of the Kansas State Board of Health will depend heavily upon voluntary area-wide comprehensive health planning groups; therefore, be it

Resolved, That the Kansas Medical Society endorses the concept of voluntary area-wide health planning; and be it further

Resolved, That physicians exert leadership in promoting such programs within their communities.

THE COMMISSIONS

RESOLUTION NO. 8

(Prepared by the Committee on Endowment—Cyril V. Black, M.D., Chairman. Submitted by the Commission for Education.)

Memorial Fund

WHEREAS, the Society has suffered a loss during this past year through the deaths of Conrad M. Barnes, M.D., Past President; J. Gordon Claypool, M.D., Second Vice President; and John L. Lattimore, M.D., Treasurer, who each have made numerous and notable contributions to this Society, therefore be it

Resolved, That members of the Society be invited to contribute to a Memorial Medical Student Loan Fund in memory of Drs. Barnes, Claypool and Lattimore, and be it further

Resolved, That this fund be contributed directly to the loan fund at the University of Kansas and not through AMA-ERF.

RESOLUTION NO. 9

(Prepared by the Committee on Medical History —Ralph R. Melton, M.D., Chairman. Submitted by the Commission for Education.)

Essay Contest for Medical Students

Be It Resolved, That the Kansas Medical Society offer to the medical students at the University of Kansas School of Medicine a first prize of $250.00; and a second prize of $100.00, for essays prepared before March 1 of the following year and judged by the Medical History Committee for such awards.

RESOLUTION NO. 10

(Prepared and submitted by the Commission for Education.)

History Essay Prize

WHEREAS, This past year the Kansas Medical Society offered a first prize of $250.00 and a second prize of $100.00 to all junior college and college students in the State of Kansas; and

WHEREAS, Approximately 16 of these schools requested the opportunity to participate in this program and indicated that they felt they would have some students who would be interested in writing these essays; and

WHEREAS, The deadline that was set for the sub-

mission of the essays was reached without having received any such papers from previously interested colleges; therefore be it

Resolved, That this contest having a two-fold purpose of offering a prize and also of stimulating interest in the medical field, that the Kansas Medical Society offer this same prize to juniors and seniors in high schools because it is felt that we may stimulate one of them to become a physician or at least enter the medical field and also because they probably have more time to devote to such research than the college students.

RESOLUTION NO. 11

(Prepared by the Committee on Regional Medical Programs—Thomas J. Luellen, M.D., Chairman. Submitted by the Commission for Education.)

Regional Medical Programs

WHEREAS, The University of Kansas School of Medicine has been designated a center for the Regional Medical Program; and

WHEREAS, A number of communities have applied for grants with which to participate in such programs; and

WHEREAS, The Medical Center encourages other areas to develop projects under the Regional Medical Planning concept; therefore be it

Resolved, That the Kansas Medical Society endorse the continuation of Regional Medical Planning in Kansas because it is medically oriented and is one of the rare federally sponsored programs that leaves the initiative to the medical profession at the local level; and be it further

Resolved, That the Committee on Regional Medical Programs continue to serve this Society as a liaison between the Medical Center and the practicing physician.

RESOLUTION NO. 12

(Prepared and submitted by the Commission for Education.)

Kansas Medical Society Student Loan Fund

WHEREAS, Many members and friends of the Kansas Medical Society would wish to contribute to a memorial for departed members; and

WHEREAS, Many potential memorial offerings are lost for lack of a standing mechanism to receive such funds; and

WHEREAS, Many members and friends of the Kansas Medical Society would prefer that such memorials be for the aid of future members of the medical profession; therefore be it

Resolved, That the Kansas Medical Society establish a Memorial Student Loan Fund at the University of Kansas School of Medicine to which contributions may be made and which will offer an annual accounting to the Kansas Medical Society; and be it further

Resolved, That the membership of the Kansas Medical Society be notified promptly on the death of any member so that contributions may be made for the departed in lieu of a floral offering; and be it further

Resolved, That the Executive Director notify the family of the deceased of contributions made in his behalf; and be it further

Resolved, That the JOURNAL OF THE KANSAS MEDICAL SOCIETY annually publicize the Memorial Student Loan Fund by publishing an activity report.

RESOLUTION NO. 13

(Prepared by the Committee on School Health—Evalyn S. Gendel, M.D., Chairman. Submitted by the Commission for Education.)

Health Education in Kansas

WHEREAS, The quantity and quality of health education in the schools of Kansas varies; and

WHEREAS, This state offers no specified curriculum in these subjects as a requirement for graduation; therefore be it

Resolved, That the State of Kansas require, in addition to physical education requirements, that a specified number of units in health education be completed each year from the first grade through the twelfth *to include knowledge about human body systems including the reproductive system—about mental health, about quackery, self-medication, prevention of disease, about medical care systems and other areas to the end that citizens can take more informed and responsible action in decision-making about their own health;*

That courses in physical education and participation in competitive sports may not satisfy the requirement; and be it further

Resolved, That the state assign to the appropriate colleges or universities the charge to offer a health education curriculum to the Ph.D. level; and be it further

Resolved, That the state recognize the fields of physical education, counseling, and health education as separate disciplines by offering separate courses and distinguishable degrees at the graduate level in each field; and be it further

Resolved, That the state offer special inducements

to students in health education through scholarships, reduced tuition or other means to accelerate this program and more rapidly provide the schools of Kansas with health educators; and be it further

Resolved, That the Kansas Medical Society authorize the Committee on School Health, together with the School Health Council, the State P-TA, and with whatever individuals or organizations appear to be appropriate, to

1. Recommend hours of study and hours of physical education required each year in health education.
2. Prepare information upon the educational requirements for a Bachelor's, a Master's, and a Ph.D. degree in physical education, in counseling, and in health education.
3. Enlist the services of the medical profession, local boards of education, school administrators, and the public generally to obtain whatever legislation may be required to educate an adequate number of health educators for Kansas schools and to bring every student a standard continuing instruction in health.

RESOLUTION NO. 14

(Prepared by Harvey L. Bogan, M.D. Submitted by the Commission for Education.)

Medical Curriculum

WHEREAS, There is an acute shortage of all medical personnel both in the state and nationally; and

WHEREAS, Both the American Medical Association and the Association of American Medical Colleges have recommended that the education of medical personnel be greatly accelerated; and

WHEREAS, Leading educators, as a means of preventing duplication, have advised that medical schools give credit for advanced work done in college; and

WHEREAS, Advanced credit would attract better students into Medicine, reduce the high attrition rate of the first two years of Medicine, create an in-state reservoir of replacements for the second and third year classes, and facilitate vertical mobility of the allied health fields; therefore be it

Resolved, That the Kansas Medical Society recommend to the University of Kansas School of Medicine that they give credit for advanced courses done in the state universities, and that as soon as courses can become standardized that this policy be extended to the state colleges.

RESOLUTION NO. 15

(Submitted by the Commission for Health Services.)

Highway Patrol Service

WHEREAS, The State Highway Patrolman is generally the first to arrive at the scene of a highway accident; and

WHEREAS, It would be helpful if this patrol car could be equipped with certain necessary emergency care equipment; and

WHEREAS, It would be most helpful if this car were to be a station wagon that could be used for an emergency ambulance at that time; therefore, be it

Resolved, That the Kansas Medical Society, through its Committees on Rural Health, Safety, and Emergency Medical Care, explore the possibility of the State Highway Patrol personnel being thoroughly trained in emergency care and that such equipment be furnished to them for the immediate care and transportation of those injured in highway accidents.

RESOLUTION NO. 16

(Prepared by the Committee on Aging. Submitted by the Commission for Health Services.)

Nursing Home Call List

WHEREAS, In the State of Kansas it is becoming more necessary for the elder citizens to be housed and cared for in nursing homes; be it

Resolved, That the physicians of Kansas explore the possibility of an emergency call list being prepared for nursing home coverage in each community; and be it further

Resolved, That physicians in each community extend their interest in nursing homes and make every effort to correct deficiencies where such exist.

RESOLUTION NO. 17

(Prepared by the Committee on Allied Groups. Submitted by the Commission for Health Services.)

Dietetic Manual

WHEREAS, The Kansas Dietetic Association has been in the process of preparing a dietetic manual in language that can be clearly understood by cooks and other kitchen help in the hospitals and nursing homes; and

WHEREAS, This should prove to be of great benefit to the physicians in having more knowledgeable personnel with which to work; therefore be it

Resolved, That the Kansas Medical Society go on record as approving the program of the Kansas Dietetic Association for the dissemination of dietary information to these indicated areas throughout the State of Kansas.

RESOLUTION NO. 18

(Prepared by the Committee on Comprehensive Health Planning. Submitted by the Commission for Health Services.)

Forum on Solo Practice

Resolved, That the American Medical Association delegates from Kansas be directed to present a resolution to the A.M.A. directing the Board of Trustees of the American Medical Association to set up a forum on solo practice of medicine.

RESOLUTION NO. 19

(Prepared by the Committee on Comprehensive Health Planning. Submitted by the Commission for Health Services.)

Comprehensive Health Planning

WHEREAS, The Kansas Medical Society has previously endorsed the Legislative selection of the State Board of Health as the Planning Agency for Comprehensive Health Planning in Kansas; and

WHEREAS, The State Board of Health has indicated a continuing interest in providing information to and eliciting cooperation from the members of the Kansas Medical Society; therefore be it

Resolved, The Kansas Medical Society re-affirms its endorsement of the Legislative selection of the Kansas State Board of Health, as presently constituted, as the Planning Agency for Comprehensive Health Care in Kansas.

RESOLUTION NO. 20

(Prepared by the Committee on Comprehensive Health Planning. Submitted by the Commission for Health Services.)

PL 89-749

WHEREAS, Public Law 89-749 and its various amendments, designated as Comprehensive Health Planning, is in process of implementation in Kansas; and

WHEREAS, The implementation of this law will affect all aspects of health care in all sections of the state; and

WHEREAS, The State Planning Council of Kansas and the State Board of Health, which is the Planning Agency in Kansas, have manifested every inclination to involve cooperative effort of the medical profession of Kansas in this program; therefore be it

Resolved, That

1. The Kansas Medical Society urges its members to become informed and involved in Comprehensive Health Planning at all levels in Kansas, but particularly at the area-wide and community level.

2. The Kansas Medical Society will make every effort to keep the membership informed of the current status of Comprehensive Health Planning in Kansas.

3. The Kansas Medical Society will cooperate with and assist in every way possible the State Planning Council and the State Board of Health in the program of Comprehensive Health Planning in Kansas.

RESOLUTION NO. 21

(Submitted by the Commission for Health Services.)

Fifty-Bed Natural Disaster Hospital Units

WHEREAS, The destruction and disaster resulting from tornadoes to the communities of Kansas is a significant annual threat; and

WHEREAS, The communities suffering such disasters at the time may be desperately in need of hospital services; and

WHEREAS, Hospitals now existing in communities may be destroyed not only by a tornado but by other natural disaster; and

WHEREAS, Through federal sources completely equipped transportable 50-bed hospital units are being made available to Kansas; therefore, be it

Resolved, That the Kansas Medical Society encourage local medical societies to cooperate in the organization, coordination and use of such hospital units; and be it further

Resolved, That such hospital units be located so as to be readily available to any community at the time of disaster.

RESOLUTION NO. 22

(Prepared by Committee on Emergency Medical Care. Submitted by the Commission for Health Services.)

Hospital Emergency Care

WHEREAS, The annual loss of life and injured in the United States from accidental injuries during 1967 was 112,000 killed and 10,700,000 injured; and

WHEREAS, In Kansas during 1967, 1,338 persons were killed and 128,000 injured; and

WHEREAS, In Kansas during 1967, 682 were killed on our highways and 24,000 injured; and

WHEREAS, The leading cause of death and crippling injury to the youth of our state is the automobile accident; and

WHEREAS, The major portion of such victims are transported to hospitals and cared for in the emergency rooms; therefore be it

Resolved, That the Kansas Medical Society urge medical staffs of Kansas hospitals to review the emergency services, to up-date it, and be prepared to render a high level of service at maximum efficiency. This would include the emergency room, hospital personnel, medical personnel and standards for their community ambulance services.

RESOLUTION NO. 23

(Submitted by the Commission for Health Services.)

Emergency Medical Care Committee Chairmen

WHEREAS, The mobilization and coordination of medical and hospital services at the time of a local or state-wide disaster constitutes a most important problem; and

WHEREAS, Any community at the time of a disaster and unable to meet the burden of medical and hospital needs may request such help from surrounding areas; and

WHEREAS, Such requests can most effectively be made and responded to by physicians through organized effort; therefore be it

Resolved, That the Kansas Medical Society request local societies to furnish annually the name of the chairman of the Emergency Care Committee responsible for organization, mobilization and coordination of medical and hospital personnel of their community; and be it further

Resolved, That these names with addresses and phone numbers be listed in each printing of the JOURNAL.

RESOLUTION NO. 24

(Prepared by the Committee on Hospitals. Submitted by the Commission for Health Services.)

Physicians on Hospital Boards of Trustees

Resolved, That the Kansas Medical Society recommend that the State Board of Health be urged to insist that there be medical representation on the Board of Trustees of each hospital or a requirement for licensure; therefore be it further

Resolved, That our American Medical Association delegates be instructed to introduce a resolution that medical representation on Hospital Boards of Trustees be a requirement for approval by the Joint Commission on Accreditation of Hospitals, therefore be it further

Resolved, That the Kansas Council on Standards for Hospitals approach the Kansas Hospital Association relative to the above resolution.

RESOLUTION NO. 25

(Prepared by the Committee on Hospitals. Submitted by the Commission for Health Services.)

Liaison Between Associations

Resolved, That the Kansas Council on Standards for Hospitals be continued in existence and that it assist in the Utilization Committee activities in various hospitals and serve as an effective liaison between the Kansas Hospital Association and the Kansas Medical Society.

RESOLUTION NO. 26

(Prepared by the Committee on Rural Health. Submitted by the Commission for Health Services.)

Ambulance Service and Training Programs

WHEREAS, There is a definite need for ambulance service in rural Kansas; and

WHEREAS, Regulations are necessary in order to maintain standards of ambulance and emergency medical care services; therefore be it

Resolved, That the Kansas Medical Society go on record as doing everything in its power to upgrade ambulance service; however, feeling that an immediate and strict enforcement of a model ambulance ordinance would result in no ambulance service in many communities; and be it further

Resolved, That we encourage county medical societies to take an active part in establishing educational programs in training of paramedical personnel in emergency medical care.

RESOLUTION NO. 27

(Submitted by the Commission on Scientific Study.)

Hospital Regulations

WHEREAS, *Hospital Regulations,* 4th edition (1958) of the Kansas State Board of Health makes

no provision for operation of psychiatric units in other than a closed ward manner; and

WHEREAS, Such regulations make operation of an "open ward" psychiatric unit a situation open to possible lawsuit in event of patient injury; then be it

Resolved, That the Kansas Medical Society urge revision of *Hospital Regulations* by the State Board of Health in these matters of open and closed ward psychiatric units, to protect the operation of effective therapeutic programs.

RESOLUTION NO. 28

(Submitted by the Commission on Scientific Study.)

Registration of Technicians

Be It Resolved. That the Kansas Medical Society support and/or sponsor legislation enabling the Board of Healing Arts to establish criteria for training and registration of Operating Room Technicians.

RESOLUTION NO. 29

(Prepared by the Committee on the JOURNAL —Robert P. Woods, M.D., Chairman. Submitted by the Commission for Society Organization.)

The Journal

WHEREAS, The JOURNAL OF THE KANSAS MEDICAL SOCIETY is the official publication of this Society; and

WHEREAS, The JOURNAL provides the membership with a medium through which they may publish original scientific articles; and

WHEREAS, The JOURNAL carries announcements and items of interest to the members of this Society; and

WHEREAS, The Kansas Medical Society takes pride in the contents and in the format of the JOURNAL; therefore be it

Resolved, That the House of Delegates express its gratitude to Orville R. Clark, M.D., Editor, and to the members of the Editorial Board for the great service they continually render this Society in the preparation of this JOURNAL; and be it further

Resolved, That the House of Delegates authorize the expenditure of such funds as may be necessary to preserve the present format of the JOURNAL and to continue its publication.

RESOLUTION NO. 30

(Prepared by the Committee on Membership— Clair C. Conard, M.D., Chairman. Submitted by the Commission for Society Organization.)

Membership

WHEREAS, The sections of the By-Laws relating to membership are in need of improved organization to more readily identify the various classifications of members; and

WHEREAS, The Committee is of the opinion that additional membership classifications should be listed; and

WHEREAS, The Committee is of the opinion that certain classes of members should pay less than the full amount of dues; therefore be it

Resolved. That Section 1.0, entitled Membership, of the By-Laws, be amended as follows:

1.0 Membership

1.1 EACH COMPONENT SOCIETY shall judge the qualifications and classify its own members. The following sections present an opportunity for component societies to select the classification which most adequately serves the member and the society. When names are submitted on a properly prepared roster to the state office along with payment of the full annual assessment to the Kansas Medical Society and the American Medical Association, if required by their classification, the listed physicians shall remain so as long as they are members in good standing in their component societies and the dues to the Kansas Medical Society and American Medical Association remain paid.

1.2 BEFORE A CHARTER is issued to any component society, ample and full opportunity to become a member shall be given to every physician residing or practicing in the area encompassed by that society.

1.3 EVERY ELIGIBLE PHYSICIAN shall be privileged to apply for membership in an established component society encompassing his area of practice.

1.4 WHEN A MEMBER'S PRACTICE is interrupted by an authorized absence, his dues will not be refunded except upon recommendation by the component society to which he belongs.

1.5 MEMBERS MAY ATTEND an annual session after first registering and being verified.

1.6 CLASSIFICATION OF MEMBERS.

1.61 Members with the right to vote and hold office:

1.611 *Members who pay full dues.* Members of a component society who hold a degree of Doctor of

Medicine or its equivalent and are licensed by the Kansas State Board of Healing Arts.

1.612 *Members who are dues-exempt.* Members who have been designated by their component society to be dues-exempt for one of the following classifications:

1.6121 *Leave of Absence:* Members experiencing financial hardship or with an extended illness which prevents them from engaging in practice.

1.6122 *Retirement:* Members who have retired from active practice.

1.6123 *Service:* Members temporarily serving with the Armed Forces.

1.6124 *Emeritus:* Members over seventy (70) years of age who have been dues-paying members for over ten (10) years. This is not an automatic classification and those wishing to retain active membership status may do so.

1.613 *Members who pay less than full dues.*

1.6131 *Teachers:* Physicians whose activities are predominantly teaching, administration or research in approved medical school shall pay fifty per cent (50%) of the regular dues and assessments.

1.6132 *Professionally Employed Members:* Professionally employed members who are not engaged in the private practice of Medicine, who are in full time employment in a Veteran's Administration Hospital, in the Kansas Public Health Department, in federal or state institutions within Kansas. These shall pay fifty per cent (50%) of the regular dues and assessments.

1.62 Members without the right to vote and hold office:

1.621 *Intern and Resident Members* engaged in full time training will be assessed annual dues of one dollar ($1.00).

1.622 *Probationary Members:* A probationary member of a component society is a probationary member of the Kansas Medical Society for such period as is designated by his component society. He will pay dues to the Kansas Medical Society in the same proportion as his dues relate to the full dues assessed by the component society.

1.623 *Honorary Members:* Physicians, whether Kansans or not, who have made an outstanding contribution to the Kansas Medical Society or to the field of Medicine in general and who are voted into honorary membership by the House of Delegates. They will pay no dues.

1.624 *Missionaries:* Physicians from Kansas who have graduated from recognized medical schools and who are serving outside of the United States as missionaries or in educational or philanthropic labors. They pay no dues.

1.625 *Foreign Physicians:* Members of chartered national medical societies of foreign countries. They pay fifty per cent (50%) of the usual dues and assessments.

1.63 Non-Physician Members: They are ineligible to vote and hold office:

1.631 *Student Members:* Senior students at the University of Kansas School of Medicine and senior students at any recognized medical school whose home is in Kansas. They shall receive the University of Kansas issue of the JOURNAL and be on the mailing list of the Kansas Medical Society.

1.632 *Honorary:* Non-physicians, whether Kansans or not, who have made an outstanding contribution to the Kansas Medical Society or to the field of Medicine in general and are voted into honorary membership by the House of Delegates.

RESOLUTION NO. 31

(Prepared by V. Dean Schwartz, M.D. Submitted by the Commission for Society Organization.)

Resolutions

WHEREAS, The By-Laws do not contain direct reference to the preparation of resolutions and their distribution prior to the meeting of the House of Delegates; therefore be it

Resolved, That the By-Laws be amended by the addition of three new sections:

5.4413 Resolutions delivered to the Executive Office before the deadline for publication will be numbered by the Executive Director and printed in the JOURNAL OF THE KANSAS MEDICAL SOCIETY issue for the month prior to that of the annual session.

5.4414 Resolutions delivered to the Executive Office in time for distribution will be sent to delegates and secretaries of component societies, as to arrive two weeks or more prior to the annual session. These resolutions will be numbered and published by the Executive Director without change in form or content.

5.4415 Published resolutions available to delegates as provided above are dispensed from a formal first reading, and may be assigned directly to a reference committee by the Speaker.

RESOLUTION NO. 32

(Prepared by the Nominating Committee—George E. Burket, Jr., M.D., Chairman. Submitted by the Commission for Society Organization.)

The Executive Committee

Be It Resolved, That the By-Laws be amended in Section 8:15 by deleting the word "and" after the word "Secretary," and adding after the word "Treasurer" the words "and the Delegates to the American Medical Association."

RESOLUTION NO. 33

(Prepared by the Committee on Constitution and By-Laws—Glenn R. Peters, M.D., Chairman. Submitted by the Commission for Society Organization.)

Publication of Constitution and By-Laws

WHEREAS, Amendments to the Constitution or By-Laws adopted by the House of Delegates subsequent to printing of such document rapidly leaves the printed document out of date and inaccurate; therefore be it

Resolved, That the Constitution and By-Laws be published in loose-leaf form whereby amendments can be inserted to give delegates access to correct copies.

RESOLUTION NO. 34

(Prepared by the Committee on Society Contributions—Robert P. Norris, M.D., Chairman. Submitted by the Commission for Society Organization.)

Contributions by the Society

WHEREAS, Numerous worth-while health oriented organizations request contributions of money from the Kansas Medical Society; and

WHEREAS, Such requests are considered by the Council on their individual merit but without an over-all Society policy in this regard; therefore be it

Resolved, That the total of all contributions given by the Society in any one year shall not exceed $4,000 and that not more than 20 per cent of this total be contributed in any one year to a single organization.

RESOLUTION NO. 35

(Prepared by the Committee on State Meeting Improvement—Donald J. Smith, M.D., Chairman. Submitted by the Commission for Society Organization.)

State Meeting Improvement

WHEREAS, The needs for all-encompassing physical facilities are apparent for the purpose of the Kansas Medical Society to hold the annual meeting; therefore be it

Resolved, That the Kansas Medical Society hold its annual meeting in Topeka 1968, in Salina 1969, in Wichita 1970, and in Kansas City in 1971; and be it further

Resolved, That until other cities develop such all-encompassing facilities that this Society's annual meeting be limited to the schedule as outlined.

RESOLUTION NO. 36

(Prepared and submitted by the Commission for Sociology and Economics.)

Cultists

Be It Resolved, That the Kansas Medical Society express to national and state legislators, to government executive officials and to officials of public agencies in the health care field its deep dismay and disillusionment over the inclusion of cultists with no recognizable standards or established merit in treatment of human illness in publicly supported health care programs; and be it further

Resolved, That the Kansas Medical Society feels this can have no other result than deterioration of health care and inflation of its cost.

RESOLUTION NO. 37

(Prepared and submitted by the Commission for Sociology and Economics.)

Retirement Program

Be It Resolved, That the House of Delegates authorize the Commission on Sociology and Economics to continue to organize a voluntary tax exempt retirement program under the auspices of the Kansas Medical Society.

RESOLUTION NO. 38

(Prepared and submitted by the Commission for Sociology and Economics.)

Fee Verification

WHEREAS, This Commission has prepared a mechanism of fee verification as requested by the 1967 House of Delegates, and submitted this to the Council as instructed; and

WHEREAS, There is great unrest in the political climate in the Kansas Legislature and nationally regarding health services; and

WHEREAS, This is particularly true of the Blue Shield Board's composition in the State of Kansas; and

WHEREAS, There are already means of investigating cases of suspected fraud; and

WHEREAS, Doctors *are* charging usual and customary fees; and

WHEREAS, There are *no* requests presently for verification of doctors' fees; therefore be it

Resolved, That the House of Delegates direct the Commission on Sociology and Economics to study the question of fee verification for an additional year before any implementation; and be it further

Resolved, That the Kansas Medical Society invite Blue Shield and/or commercial insurance companies to provide the Commission with alternate plans for verification.

RESOLUTION NO. 39

(Prepared and submitted by the Commission for Sociology and Economics.)

Guidelines for Title XIX

Be It Resolved, That the Guidelines of the Advisory Committee to Welfare be approved by the House of Delegates as submitted.

RESOLUTION NO. 40

(Prepared and submitted by the Commission for Sociology and Economics.)

Advisory Committee to Welfare

WHEREAS, The Advisory Committee to Welfare has held an exceptional number of meetings and has performed a great service to the Kansas Medical Society; therefore be it

Resolved, That the House of Delegates express its thanks to James A. McClure, M.D., Chairman, and to the members of this Committee.

RESOLUTION NO. 41

(Prepared and submitted by the Commission for Sociology and Economics.)

Medical-Legal Conference

WHEREAS, The First Kansas Medical-Legal Conference was both well attended and well received; therefore be it

Resolved, That the House of Delegates express its compliments to Henry O. Marsh, M.D., Chairman, and to the members of his Committee on Relations with the Bar Association on the excellence of the program presented in the Medical-Legal Conference held in Topeka, February 29, 1968; and be it further

Resolved, That future medical-legal conferences shall be held every other year.

RESOLUTION NO. 42

(Prepared and submitted by the Commission for Sociology and Economics.)

Kansas Relative Value Studies

WHEREAS, Experience has indicated the need for certain revisions in the Kansas Relative Value Studies; and

WHEREAS, There is an expressed need for the inclusion of additional identification numbers and procedure descriptions; therefore be it

Resolved, That the Kansas Society of Pathologists and the Kansas Radiological Society supply information regarding the technical components for hospital-based procedures; and be it further

Resolved, That the assistance of the specialty organizations, including the Academy of General Practice, be enlisted to revise the entire Relative Value Studies as needed.

RESOLUTION NO. 43

(Prepared and submitted by the Commission for Sociology and Economics.)

Customary Fees and Commercial Insurance

WHEREAS, The Kansas Medical Society has previously expressed its preference for the payment of usual and customary fees by third parties in place of fee schedules; and

WHEREAS, The great majority of Kansas physicians have filed their usual and customary fees with Blue Shield; and

WHEREAS, Blue Shield is currently paying physi-

cians their usual and customary charges under community range maximum; and

WHEREAS, Commercial insurance companies participating in the Kansas Health Insurance Council have expressed a desire to pay usual and customary fees to physicians; therefore be it

Resolved, That the Kansas Health Insurance Council be offered usual and customary contracts subject to the usual review procedures.

RESOLUTION NO. 44

(Prepared and submitted by the Commission for Sociology and Economics.)

Ethics Relating to Charging Principles

PREAMBLE: The Kansas Medical Society recommends to all third parties who provide reimbursement to persons for all or part of the cost of professional medical service that payment shall be based upon the physician's charges, provided they do not exceed the community range maximum as may be established under a mutually agreed upon formula which formula is subject to periodic review.

Recognizing that health services are essential and that their cost is sometimes not clearly understood by the patient, the Kansas Medical Society is pledged to the principle that physicians shall:

1. Provide their patients all possible economy in health care consistent with scientific practice,
2. Guard equally against under and over utilization of services,
3. Practice in keeping with the standards of physicians in the area,
4. Encourage patients to freely discuss fees with their doctor, preferably before the service is rendered.

The Kansas Medical Society declares that, subject to exceptions listed in the section to follow, the cost of medical services rendered a patient whose health care is paid for, all or in part by a third party, will be no higher than the charges made by the same physician for similar service to comparable patients who pay their own bill.

BE IT UNDERSTOOD THAT:

1. The physician shall establish the value of the professional service he renders his patient. If the patient agrees to the fee and accepts responsibility for payment, and if the physician looks to the patient (or his family) only, for payment, then the physician's charge is not subject to consideration as a question of ethics.
2. The physician who looks to a third party for payment of a medical service will accept such reimbursement as payment in full when the third party assumes:
   a. the total cost of the patient's covered medical care at reasonable, usual and customary charges,
   b. the remainder of reasonable, usual and customary charges in full except for a stipulated deductible to be paid by the patient,
   c. under law or regulation, payment according to a fee schedule or an established maximum to be the total cost for covered medical care.
3. In other circumstances involving third party payments, even when the physician accepts an assignment, the charge for professional services is determined by agreement between the physician and his patient. The third party, if concerned at all, will negotiate with the patient.
4. The Kansas Medical Society makes available to the physician, the patient or the third party, professional review and grievance committees at the component society, the Council district and the state level to make recommendations on specific instances where:
   a. fees above the reasonable, usual and customary are requested in exceptional instances where more than usual professional care was required,
   b. an individual charge or payment is challenged as deviating from the concept of reasonable, usual and customary,
   c. where the relationship between the service rendered and the fee charged or allowed is questioned,
   d. the professional service is under question as to eligibility for payment or whether its performance was in keeping with community standards.

Be It Resolved, That the principles of medical ethics of the Kansas Medical Society are those adopted by the American Medical Association and this statement upon charging principles.

RESOLUTION NO. 45

(Submitted by KaMPAC Board of Directors.)

Political Action Committee

WHEREAS, The Kansas Medical Society, each year, has endorsed and given its support to AMPAC; and

WHEREAS, KaMPAC in Kansas, with AMPAC support, has become one of the strong state medical political action committees; and

WHEREAS, Continued support and growth of

KaMPAC is essential to their continued success; therefore be it

Resolved, That this House of Delegates of the Kansas Medical Society reaffirm its support of AMPAC and its Board of Directors and urge the KaMPAC Board to strengthen its effort in pursuit of additional memberships in order to strengthen their political education and action activities; and be it further

Resolved, That the Council of the Kansas Medical Society be commended for its development and continued support of KaMPAC and medical political action in general; and be it further

Resolved, That the House of Delegates of the Kansas Medical Society request its House of Delegates and Council to take immediate action to explore additional ways of increasing and strengthening its support of KaMPAC to the end that KaMPAC may be permitted an opportunity to enlarge its vital activities and its assistance in preparation for the 1968 elections.

COUNTY SOCIETIES

RESOLUTION NO. 46

(Submitted by the Butler County Medical Society.)

Compulsory AMA Membership

WHEREAS, The Butler County Medical Society feels that compulsory dues and membership in the American Medical Association is not in the best interest of free enterprise and individual responsibility of Kansas physicians, be it

Resolved, That the By-Laws of the Kansas Medical Society shall be amended in such fashion that a membership in the Kansas Medical Society shall not require membership in the American Medical Association.

(Adopted February 26, 1968, by Butler County Medical Society, in regular session.)

RESOLUTION NO. 47

(Submitted by Saline County Medical Society, March 19, 1968.)

Past Presidents on Council

WHEREAS, The past presidents serve as non-voting members of the Council of the Kansas Medical Society; and

WHEREAS, These members have given long hours of service to the Kansas medical profession and have held many offices in their local and state societies; and

WHEREAS, These past presidents have given service to the Kansas Medical Society as presidents; and

WHEREAS, These past presidents do not have a vote in the Council according to present By-Laws; and

WHEREAS, There would not be a sufficient number at any time to control the Council of the Kansas Medical Society; therefore be it

Resolved, In recognition of the satisfactory fulfillment of the duties and responsibilities given as service by these past presidents during their tenure in office, that the By-Laws of the Kansas Medical Society be amended to read in such a manner as to allow each past president one (1) vote in the Council meetings.

RESOLUTION NO. 48

(Submitted by Saline County Medical Society, March 19, 1968.)

Physicians on Hospital Boards

WHEREAS, There is an increasing amount of pressure being placed on health by the United States Government; and

WHEREAS, It has been the policy of the hospital organization to disallow physicians as voting members of their boards; and

WHEREAS, The physicians of Kansas have long taken an active part in the hospitals of Kansas; and

WHEREAS, The AMA, through its House of Delegates, passed a resolution stating that every hospital board should have a physician as a full voting member of the board; and

WHEREAS, The AMA, as a result of this resolution, has urged the Joint Committee on Accreditation of Hospitals to implement this resolution; and

WHEREAS, The physician shall not be employed by the board that has as its subordinate any hospital involved with the board; and

WHEREAS, The physician be elected by the members of the hospital staff for a term not to exceed three years; and

WHEREAS, This would improve the care of patients in the hospital; therefore be it

Resolved, That the Kansas Medical Society urge the State Board of Health to adopt as one of its qualifications for licensure of hospitals in Kansas that every hospital board have a qualified physician of its medical staff as a full voting member of that board.

NOMINATING COMMITTEE

The Nominating Committee met on Saturday, February 3, 1968, and submits to the House of Delegates the following list of nominations for the elective offices of this Society. Wherever more than one nomination appears these are presented in alphabetical order. A very brief biography accompanies each name.

President-Elect

Leland N. Speer, M.D., Kansas City. Born in 1912. Graduated from the University of Kansas School of Medicine in 1936. This year served as First Vice President.

First Vice President

Francis T. Collins, M.D., Topeka. Born in 1914. Graduated from the University of Kansas School of Medicine in 1943. This year served as Constitutional Secretary for the Society.

E. Burke Scagnelli, M.D., Dodge City. Born in 1918. Graduated from the Loyola University School of Medicine in 1943. Was president of Kansas Blue Shield.

Alex Scott, M.D., Junction City. Born in 1923. Graduated from the University of Wisconsin School of Medicine in 1948. Is currently serving as Councilor for District 5.

Second Vice President

Kenneth L. Graham, M.D., Leavenworth. Born in 1921. Graduated from the Ohio State University School of Medicine in 1945. This year served as chairman of the Commission on Socio-Economic Study.

Carl C. Gunter, M.D., Quinter. Born in 1920. Graduated from the University of Kansas School of Medicine in 1951. Is currently serving on the Executive Committee of Kansas Blue Shield.

William J. Reals, M.D., Wichita. Born in 1920. Graduated from Creighton University School of Medicine in 1945. Now serving as Alternate AMA Delegate.

Constitutional Secretary

Harvey L. Bogan, M.D., Baxter Springs. Born in 1910. Graduated from the University of Kansas School of Medicine in 1942. Is presently serving as member of the Board of Health.

Emerson D. Yoder, M.D., Denton. Born in 1914. Graduated from the University of Kansas School of Medicine in 1949. Was recently Councilor for District 1.

Treasurer

Virgil E. Brown, M.D., Sabetha. Born in 1906. Graduated from the University of Kansas School of Medicine in 1937. Is presently serving as Councilor of District 1.

Chester M. Lessenden, Jr., M.D., Topeka. Born in 1918. Graduated from the University of Kansas School of Medicine in 1943. Has served on the Executive Committee of Kansas Blue Shield.

AMA Delegate

Lucien R. Pyle, M.D., Topeka. Born in 1901. Graduated from Rush Medical College in 1928. Has been president of the Kansas Medical Society. Is presently serving as AMA Delegate.

Alternate AMA Delegate

J. Warren Manley, M.D., Kansas City. Born in 1907. Graduated from the University of Kansas School of Medicine in 1940. Has served as Councilor. Is currently serving as Alternate AMA Delegate.

NECROLOGY REPORT

Following is a list of members of the Kansas Medical Society whose deaths have been reported since the last meeting of the House of Delegates.

Name and Address	*Age*	*1967*
Edwin R. Hill, *Lyons*	57	April 10
Louie J. Beyer, *Lyons*	82	April 15
Warren E. Bernstorf, *Winfield*	75	April 28
Lennert B. Mellott, *Bonner Springs*	69	April 28
Otto C. Fritts, *Osage City*	91	May 1
Lynn J. L'Ecuyer, *Concordia*	64	May 4
Carl R. Burkhead, *Wichita*	79	May 20
John L. Lattimore, *Topeka*	73	May 29
George Mandeville, *Dodge City*	66	Aug. 10
Chester H. Lockwood, *Anthony*	84	Aug. 24
Carlton B. Grissom, *Syracuse*	76	Aug. 29
David E. Kisecker, *Caldwell*	95	Sept. 3
Norman W. Anderson, *Topeka*	63	Sept. 11
J. Gordon Claypool, *Howard*	50	Sept. 22
George W. Richards, *Kansas City*	99	Sept. 30
L. Claire Hays, *Cedar Vale*	60	Oct. 1
Fred C. Young, *Mission*	58	Oct. 23
Winifred V. Wooster, *Minneapolis*	76	Oct. 25
William P. Williamson, *Prairie Village*	50	Nov. 12
Charles R. Magee, *Marion*	51	Nov. 27
Grant R. Hastings, *Garden City*	78	Dec. 2
C. Mart Montee, *Pittsburg*	81	Dec. 6
John D. McMillion, *Coffeyville*	73	Dec. 11
Harry Lutz, *Augusta*	78	Dec. 13
Gerald L. Ward, *Ellis*	45	Dec. 14
Charles D. Shrader, *Salina*	56	Dec. 15
		1968
Oliver W. Miner, *Garden City*	73	Jan. 9
Fred J. Gasser, *Cherryvale*	76	Jan. 18
Earl D. Carter, *Wichita*	79	Feb. 10
Charles D. Davenport, *Hoisington*	42	Feb. 18
John D. Hunter, *Hutchinson*	95	Feb. 21
Harry L. Cobean, *Wellington*	95	March 2
Conrad M. Barnes, *Seneca*	56	March 4
Claude F. Young, *Fort Scott*	80	March 5



Personalities—IN KANSAS MEDICINE

Herbert C. Modlin, Topeka, has been reappointed to the Council on Mental Health of the American Medical Association.

Three members of the Society, **John R. Kline,** Wichita; **Robert C. Lawson,** Topeka; and **G. Sherman Ripley, Jr.,** Salina, received the fellowship degree of the American College of Radiology in February.

George F. Gsell, Wichita, has been reappointed a member of the American Medical Association's Committee on Rating of Mental and Physical Impairment.

Henry O. Marsh, Wichita, presented an instructional course lecture on "Hip Fractures in Children" at the 35th annual meeting of the American Academy of Orthopedic Surgeons in Chicago in January.

Karl Menninger was recently appointed the first Distinguished Professor of Psychiatry for the University of Health Sciences/Chicago Medical School. Dr. Menninger, who now resides in Chicago, will lecture and act in an advisory capacity in psychiatry at the university.

Andre Baude, Topeka, attended a three-day symposium on Tuberculosis Therapy in St. Louis in February.

James J. Basham, Fort Scott, has been named to the Kansas Board of Regents. The appointment was made by Governor Docking in January.

The president of the American Academy of General Practice, **George E. Burket, Jr.,** of Kingman, addressed the Medical Assembly of Southwest Texas during the three-day meeting held in San Antonio in February.

Kermit Krantz, professor and chairman of the Department of Gynecology and Obstetrics at KUMC, discussed "Current Issues in Abortion" at a meeting of the Douglas County Family Planning Association held in Lawrence in January.

W. Stephenson, Norton, was honored with the Headgate Award for outstanding service to irrigation at the 17th annual meeting of the Four States Irrigation Council in Denver in January.

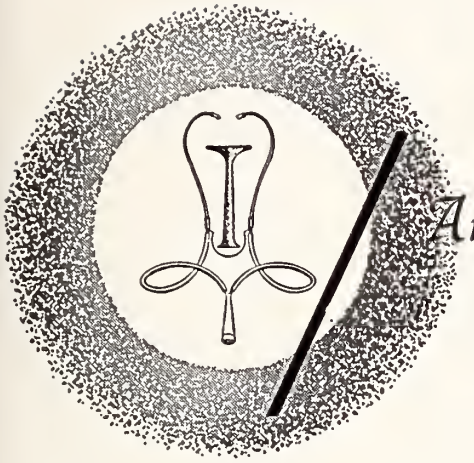
Jack G. Phipps, Wichita, has been appointed to a three-year term on the Commission on Hospitals of the American Academy of General Practice.

James M. Baeher, and **Eugene E. Kaufman,** both of Wichita, were inducted as fellows of the American Academy of Orthopedic Surgeons at the Academy's annual meeting held in Chicago in January.

Laurence S. Nelson, Salina, received the Youth Service award at the annual membership banquet of the Salina YMCA held in January. The award is for dedicated, distinguished service to youth of the community.

Edward N. Tihen, Wichita, attended the regional meeting of the American Society of Internal Medicine in Phoenix in February. Dr. Tihen is a delegate of the Kansas Society of Internal Medicine.

A. T. Reece, Gardner, has been elected to active membership in the American Academy of General Practice.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the **Doctor's Calendar.** ***Notice of the session is posted in advance to allow the physician time to make preparations.***

APRIL

Apr. 17 — **Kansas School Health Advisory Council annual spring meeting, Kansas State College, Hays. Subject for discussion: *"Trip-In" (Drug Use and Abuse Among Young Adults).***

Apr. 22-24 — American Association of Thoracic Surgery, Pittsburgh-Hilton Hotel, Pittsburgh. Write: Thomas B. Ferguson, M.D., 7710 Carondelet Avenue, St. Louis 63105.

Apr. 22-25 — Southwestern Surgical Congress, Brown Palace Hotel, Denver. Write: Jack A. Barney, M.D., Southwestern Surgical Congress, 301 Pasteur Building, Oklahoma City 73103.

Apr. 26-27 — Kansas Society of Radiologic Technologists, Glenwood Manor, Overland Park, Kansas. Write: Donald L. Blancett, R.T., Providence Hospital, Kansas City, Kansas 66102.

Apr. 28-May 1 — **Kansas Medical Society, Ramada Inn, Topeka**

Apr. 30-May 3 — American College Health Association, Leamington Hotel, Minneapolis. Write: Lee D. Stauffer, Box 9117, Coral Gables, Florida 33124.

MAY

May 3-4 — Cardiac Symposium sponsored by the Missouri Heart Association, Plaza Inn, Kansas City, Missouri. AAGP accredited. Write: Matthew Costello, Exec. Dir., Kansas City Heart Association, 3600 Broadway—No. 19 Upper Mall, Kansas City, Missouri 64111.

May 15-20 — Second International Congress on Lymphology, Fontainebleau Hotel, Miami Beach. Write Manuel Viamonte, Jr., M.D., University of Miami School of Medicine, Miami, Florida.

May 16 — 19th annual Dr. F. G. Thompson, Sr., Lectureship, Thompson, Brumm & Knepper Clinic, 902 Edmond, St. Joseph, Missouri. The lecture will be given at 8:15 p.m. by R. Drew Miller, M.D., Mayo Graduate School of Medicine.

May 19-20 — Symposium on Dextrans, *Current Concepts of the Basic Actions of Dextrans and Their Clinical Application in Cardiovascular and Related Fields,* Flagship Hotel, Galveston Island, Texas. Write: Texas Heart Association, P.O. Box 25041, Houston 77005.

JUNE

June 13-17 — American College of Chest Physicians, Hilton Hotel, San Francisco. Write Murray Kornfeld, Exec. Director, 112 E. Chestnut, Chicago 60611.

June 15 — Congress on Medicine and Insurance, co-sponsored by the Association of Life Insurance Medical Directors of America and the American Medical Association, Fairmont Hotel, San Francisco. Activities will include two symposiums, a luncheon program, and keynote address by M. O. Rouse, M.D., president of AMA.

June 16-17 — American College of Legal Medicine, Hilton Hotel, San Francisco, Write Miss Betty Hanna, Exec. Secretary, 60 E. Scott St., Suite 402, Chicago 60610.

June 16-20 American Medical Association annual meeting, Fairmont Hotel, San Francisco. Write F. J. L. Blasingame, M.D., Exec. Vice President, 535 N. Dearborn, Chicago 60610.

June 21-22 American Medical Writers Association, University of California San Francisco Medical Center. Fee $50. Write M. Coleman Harris, M.D., 450 Sutter Street, San Francisco.

June 26-28 Children's Hospital, Denver, will hold the annual Summer Clinics at Vail. Fee $40; registration limited. Write Dept. of Continuing Education, Children's Hospital, 19th Ave. at Downing, Denver 80218.

POSTGRADUATE COURSES

University of Kansas:

Apr. 19 ***Infectious Diseases***

Apr. 22-24 ***Ophthalmology***

May 13-14 ***Cardiac Auscultation***

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, 39th and Rainbow Boulevard, Kansas City, Kansas 66103.

University of Colorado:

Apr. 25-27 *Clinical Dermatology (limited)*

June 17-19 *Intensive Care Units (American College of Physicians)*

June 17-20 *Obstetrics and Gynecology (Estes Park)*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver 80220.

University of Nebraska:

Apr. 18-19 *Coronary Care Units in Community Hospitals*

May 24-25 *Surgery and 13th Annual Trauma Day*

For further information write the Department for Continuing Education, University of Nebraska College of Medicine, Omaha.

May 2-4 *Gastric Psychiatry,* sponsored by Mound Park Hospital Foundation and University of Florida College of Medicine, St. Petersburg. $25 fee. 18 accredited hours by AAGP. Write Gastric Psychiatry, Mound Park Hospital Foundation, Inc., St. Petersburg, Florida 33701.

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

Glenn O. Bair, M.D.
Santa Fe Hospital
Topeka, Kansas 66607

Richard L. Brownrigg, M.D.
2020 Central
Dodge City, Kansas 67801

James Canellos, M.D.
Goessel Clinic
Goessel, Kansas 67053

Sidney L. DeBriere, M.D.
P. O. Box 738
Parsons, Kansas 67357

Walter G. Dukstein, M.D.
Southwest Clinic
Dodge City, Kansas 67801

Charles F. McElhinney, M.D.
2020 Central
Dodge City, Kansas 67801

J. Scott Morrison, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Ellis Oster, M.D.
216 W. Birch
Arkansas City, Kansas 67005

Kathryn A. Rainbow, M.D.
Topeka State Hospital
Topeka, Kansas 66606

Adelbert T. Reece, M.D.
427 W. Main
Gardner, Kansas 66030

Carol A. Reece, M.D.
427 W. Main
Gardner, Kansas 66030

Rolando A. Rodriguez, M.D.
P. O. Box 500
Osawatomie, Kansas 66064

David H. Rosenstein, M.D.
Menninger Foundation
Topeka, Kansas 66601

Joseph Sargent, M.D.
Menninger Foundation
Topeka, Kansas 66601

Charlotte L. Seago, M.D.
1114 N. Washington
Liberal, Kansas 67901

Douglas Sheafor, M.D.
Menninger Foundation
Topeka, Kansas 66601

Stanley G. Sturges, M.D.
Menninger Foundation
Topeka, Kansas 66601

George L. Waugh, M.D.
128 S. Chestnut
Olathe, Kansas 66061

Have You Paid

Your

KaMPAC Dues?

1968

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence

Summary of Cases Reported in November, 1967 and 1966

Diseases	November 1967	November 1966	November 5-Year Median 1963-1967	January-November Inclusive 1967	January-November Inclusive 1966	January-November Inclusive 5-Year Median 1963-1967
Amebiasis	—	1	1	14	13	14
Aseptic meningitis	—	10	—	7	17	7
Brucellosis	—	—	—	—	9	6
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	14	3	20	53	42
Encephalitis, post-infect.	—	—	*	2	—	*
Gonorrhea	290	247	247	3,622	2,916	2,867
Hepatitis, infectious	15	14	23	195	165	242
Meningococcal meningitis	—	2	2	11	17	13
Pertussis	8	—	—	22	11	22
Poliomyelitis	—	—	—	2	—	—
Rheumatic fever	—	1	—	3	2	3
Salmonellosis	10	23	18	192	260	270
Scarlet fever	3	21	14	64	112	110
Shigellosis	379	4	13	426	62	118
Streptococcal infections	135	247	158	2,558	2,158	2,158
Syphilis	77	101	77	1,123	1,145	975
Tinea capitis	6	18	6	54	59	61
Tuberculosis	20	22	18	212	261	236
Tularemia	—	—	—	11	—	5
Typhoid fever	—	—	—	2	7	2

* Statistics for five-year median not available.

INH PROPHYLAXIS IN THE CHILD-CENTERED TUBERCULOSIS CONTROL PROGRAM

All positive tuberculin reactors are at some risk of developing active tuberculosis. INH prophylaxis is recommended for positive reactors (10 mm or more to intermediate PPD) in these situations:

1. Reactors of any age who had a negative tuberculin test within the past 2 years, or who have a history of contact with an active case.
2. Children under the age of six.
3. Adolescents, especially those with:
   a. Large PPD reactions
   b. Female sex
   c. Diabetes or prolonged steroid treatment
   d. Healed primary tuberculosis as determined by chest x-ray.
4. Adults with particular risk factors:
   a. X-ray evidence of inactive tuberculosis, not previously treated with drugs, provided that bacteriologic findings are definitely negative. Before starting INH prophylaxis, it is necessary to be sure that the reactor does not have active tuberculosis. Treatment of active tuberculosis with INH alone is poor practice; it is likely to make the person's bacilli resistant to INH.
   b. Special clinical situations: unstable diabetes, long-term steroid treatment, silicosis, measles, gastrectomy, lymphomas, postpartum period.

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Obituaries

CONRAD M. BARNES, M.D.

Dr. Conrad M. Barnes, 56, Seneca, died on March 4, 1968, at the University of Kansas Medical Center.

Dr. Barnes was born at Fillmore, Missouri, on June 3, 1911. He received his doctor of medicine degree from the University of Kansas School of Medicine in 1936. He had been a general practitioner in Seneca for 31 years. Dr. Barnes was a past president of the Kansas Medical Society, and had served as a member of the board of Kansas Blue Shield.

He is survived by his wife and a daughter.

EARL D. CARTER, M.D.

Dr. Earl D. Carter, Wichita, died on February 10, 1968, at the age of 79. He was the father of Dr. Mack A. Carter, also of Wichita.

Dr. Carter was born near Peck, Kansas, on January 31, 1899. He graduated from the Hahnemann Medical College and Hospital in Chicago in 1920, and began his practice in Wichita in 1923, specializing in otolaryngology.

Also surviving are his wife and two daughters.

HARRY L. COBEAN, M.D.

Dr. Harry Cobean, retired Wellington physician, died on March 2, 1968, at the age of 95.

He was born May 26, 1872, at Ottumwa, Iowa. Following his graduation from Washington University School of Medicine in St. Louis in 1903, he began his medical practice in Wellington, retiring in 1962. He was active in community affairs and a member of a number of civic and medical organizations.

Dr. Cobean is survived by a son.

CHARLES D. DAVENPORT, M.D.

Dr. Charles D. Davenport, 42, Hoisington, died at the home of his mother in Oklahoma City on February 18, 1968.

Dr. Davenport was born in Oklahoma City on September 14, 1925. He was a 1953 graduate of the Oklahoma University School of Medicine, and took his internship at St. Joseph's Hospital in Wichita before coming to Hoisington in 1954.

Surviving are his wife, two sons and two daughters.

JOHN D. HUNTER, M.D.

Dr. John D. Hunter, 95, a Fort Scott Physician for many years died February 21, 1968, at St. Elizabeth Hospital, Hutchinson.

Dr. Hunter was born in Philadelphia, Pennsylvania, June 23, 1873. He was graduated from University Medical College, Kansas City, Missouri, in 1905, and began his practice in Fort Scott shortly thereafter. He retired and moved to Hutchinson after the death of his wife in 1959.

Two sons survive Dr. Hunter.

CLAUDE F. YOUNG, M.D.

Dr. Claude F. Young, 80, Fort Scott, died at his home on March 5, 1968.

Dr. Young was born November 19, 1887, at Bowie, Texas. He received his medical degree from the University of Texas in 1912. He was a physician and surgeon in the Fort Scott area for many years, retiring because of ill health in December 1966.

Dr. Young is survived by his wife, one daughter and one son.

AMA's Department of Investigation:

It Serves You and the Public

When the American Medical Association was founded 121 years ago as a means of propelling American medicine out of its then "Dark Ages," one of its chief goals was to protect the public from health quacks, charlatans and pretenders.

If those concerned early-day physicians could somehow be given a miraculous glimpse into the 1960's, they might be disheartened, but perhaps not surprised to find that their lofty goal of driving quackery into everlasting oblivion has not yet been reached.

Although great strides have been made against quackery through the years, the battle is far from won. Because of man's inherent weaknesses, quackery most likely never will be completely uprooted. Unfortunately for both man and medicine, the glib, fast-footed quack too often is as adaptable as a chameleon in his relentlessness, yet often lucrative struggle for survival.

Spearheading the unremitting attack against the many ruthless forms of health quackery that endanger health and bilk victims of an estimated billion dollars a year is the AMA's Department of Investigation, which has many powerful allies in its vigilant quest.

Chief among them are the Food and Drug Administration, Post Office Department, Federal Trade Commission, National Better Business Bureau, American Pharmaceutical Association, American Cancer Society, Arthritis Foundation and numerous other public and private agencies, including all law enforcement bodies.

Serving as a clearing house for information on quackery, pseudo medicine and nostrums, the Department of Investigation's staff of 11 persons has meticulously amassed and catalogued the most extensive files available on quackery. These files are used daily in exposing quacks.

Since quacks and other medical pretenders are quite clever and so changeable in their methods, the staff is constantly on the alert for new guises as well as the old. Although the department has no law enforcement powers, much of the information it gathers, through state and local medical societies and through its own initiative, is used by federal, state, local and foreign law enforcement agencies and state licensing agencies to prosecute offenders.

One of its key roles is to alert regulatory agencies when circumstances point to the likelihood that the laws which such agencies are obliged to enforce are being violated.

The department, created in 1906, is the brainchild of the late Arthur Cramp, M.D., who, as associate editor of the *Journal of the American Medical Association,* started what was then called the Department of Propaganda for Reform in Advertising of Patent Medicines. Doctor Cramp was a most effective campaigner.

In that era, inquiries concerning quackery came primarily from physicians. That was the heyday of nostrums blatantly promising cures of diabetes or cure and alleviation of such conditions as tuberculosis, venereal disease and diphtheria. Most such nostrums, through regulatory action, have faded from the scene, being replaced by more timely "wonder cures."

Today's "merchants of menace" have adapted to the times, finding that their livelihood is greatly enhanced by such phoney, but readily saleable wares as baldness cures, sea water products, insomnia treatments, breast developers, cancer cures, useless vitamins, height increasers, all-purpose spinal adjustments and cures for the tobacco habit.

Since health education of the public is mandatory to thwart exploitation of the fearful, sick and the retarded, many of the department's efforts in recent years have been concentrated in this area with increasingly productive results. Widely diversified literature, exhibits and films—all part of this positive AMA program—have spurred greater public understanding of quackery and its evils. Today the majority of the thousands of inquiries annually directed to the department originate from the public.

Numerous quacks have been driven out of their thriving "practices" because of greater public understanding and coordinated efforts on the part of the AMA, medical societies and agencies equally concerned with the problems. Many of their phoney products no longer are marketable. Other quacks, although still plying their trade, have been forced into exile by the close watch of regulatory bodies.

Cancer "cures" such as the liquid and pills concocted by the late "Dr." Hoxsey, "gregomycin," which was conveniently unearthed from the backyard of another medical pretender and the more recent "krebiozen" have disappeared from the scene because of professional surveillance and ensuing regulatory action.

Thanks to quick action by the AMA, the Ohio State Medical Society and the Cleveland Academy, along with regulatory bodies, another alleged cancer

cure, the "Rand vaccine" was halted before it had a chance to "make a name for itself" by creating false hopes. After initial publicity in the lay press, cancer victims from throughout the world flocked to Cleveland to obtain this substance. Another potential "krebiozen" fiasco was avoided when a federal district court ultimately barred both the manufacture and distribution of the substance.

Hard times are falling on other impostors through similar action, such as Antonio Agpaoa, the self-styled "psychic surgeon" of the Philippines who has specialized in treating Americans. Alerted by the AMA, the U. S. State Department, Philippine Medical Association and government agencies are keeping a close eye on the situation. A group of more than 100 Detroit hopefuls recently visited Agpaoa. His "treatment" was branded as a "cruel hoax" upon their return.

Inroads also have been made against "dipyrone," a dangerous drug being dispensed across the border by Mexico physicians. Several deaths occurred among arthritis sufferers in several Southern states before Louisiana physicians, the AMA and others could determine the cause and issue public warnings.

In Tijuana, Mexico, still more cancer "cures" have sprouted. Despite public warnings, however, a ready supply of hopeful patients is available. As a "service" to these patients, free bus service from California is provided. Their cancer treatment in Tijuana? Drugs found to be worthless by U. S. authorities.

In the meantime, the AMA, through the Department of Investigation and other arms, is utilizing every weapon at its command to halt the spread of quackery.

And, you, as a physician, can do your part by keeping in touch with the Department of Investigation and making good use of the services and the educational literature which it has developed for the benefit of the profession and the public.

NEW FILM ON HYPERTENSION

A new film, "Hypertension: The Challenge of Diagnosis," has been produced by the American Heart Association assisted by a grant from E. R. Squibb & Sons, Inc. The film demonstrates and emphasizes the fact that the proper treatment of hypertension can be determined only when diagnostic measures have found the cause of hypertension and the damage it has done.

Visually, the film follows the case of a typical patient with no significant complaint, whose elevated blood pressure was first noted incidentally, and who had a family history of vascular disorder.

First, possible causative factors are considered. Listed are diseases most often implicated, together with significant signs and symptoms. What damage has been done to the patient is then sought, noting the organs most commonly affected. Significant signs of symptoms of the patient are described. Following are the steps of a thorough physical examination and the reasons for them for evidence to support clues already obtained or to suggest alternatives. Possible laboratory studies are described to substantiate a suspected cause of secondary hyeprtension.

The film concludes with a brief discussion of treatment, stressing the highly individualized patient management and that nearly every case represents a therapeutic trial which may take many months to complete.

The color, sound, 20-minute, 16 mm film is available for professional medical audiences from local Heart Association chapters or from E. R. Squibb & Sons, Inc., 745 Fifth Avenue, New York City.

AMA VOLUNTEER PHYSICIANS FOR VIET NAM

AMA Volunteer Physicians for Viet Nam is a program for supplying medical care to the civilian population of South Viet Nam through the volunteer services of U. S. physicians.

It is administered by the American Medical Association and financed by the United States Agency for International Development (USAID).

Physicians sent to South Viet Nam under the program serve a 60-day tour of duty at one of 18 provincial civilian hospitals. The volunteer receives only his transportation and an expense allowance of 10 dollars a day; otherwise his services are entirely unpaid.

At the hospitals the volunteers will work with teams of military physicians and corpsmen. These teams, assigned to USAID for service in provincial civilian hospitals, provide continuity in the volunteer program.

Twenty-four to 32 physicians are needed every 60 days to keep hospital staffs at full strength. Most needed are general practitioners, internists, general surgeons and orthopedic surgeons. Small numbers of specialists in other fields are needed from time to time and inquiries are invited in anticipation of future demands. Non-physicians are not recruited.

Information about the program may be obtained by contacting:

AMA Volunteer Physicians for Viet Nam
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

The Kansas Medical Society—1967-1968

OFFICERS

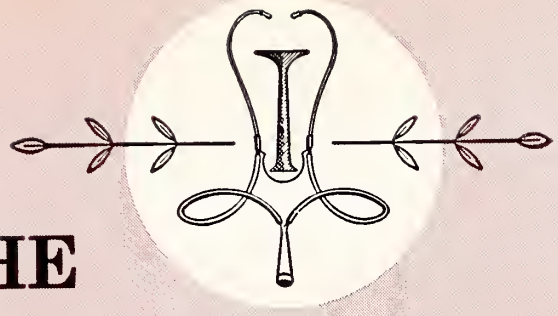
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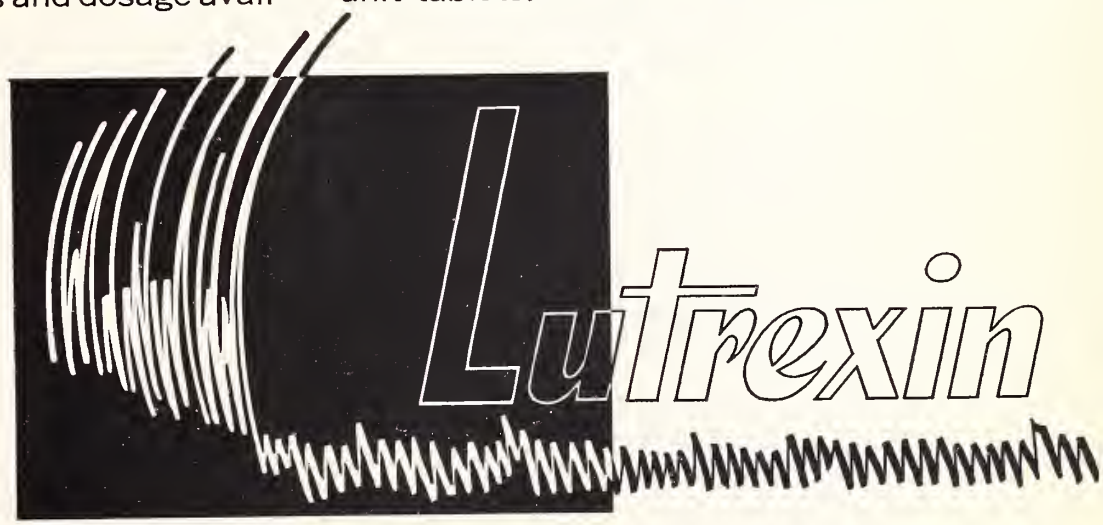
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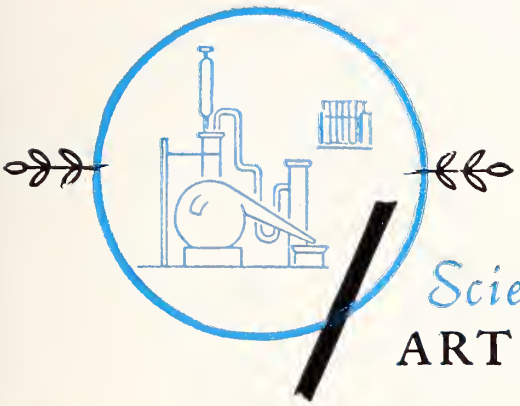
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Scientific
ARTICLES

Heat Stable LDH

Heat Stable Lactic Dehydrogenase in Blood Serum as a Diagnostic Method

C. S. REUSCH, M.D. *and* **LEITHA D. BUNCH, M.A.,** *Winfield**

This paper deals with the evaluation of heat stable LDH in serum as a diagnostic test. Serum LDH was more heat resistant in patients with acute myocardial infarction than in control serums. Serum LDH values from patients with diseases of the hepatobiliary system were more sensitive to heat than normal serum.

Knowledge of SGOT, SGPT and total LDH on any serum sample studied gave more information of the nature of the disease than serum heat stable LDH alone. Adding heat stable LDH to the regular determination of SGOT, SGPT and total LDH did not contribute to the diagnosis in any patient studied by us.

IT IS ESTABLISHED that serum lactic dehydrogenase (LDH) activity is of value in the diagnosis of various diseases. The interpretation of an elevated value is often complicated by the concomitant injury to more than one body tissue. Strandjord[1] reported that serum LDH could be separated into heat stable and heat labile components by the incubation of serum at 65° C for 30 minutes. The authors found that after a myocardial infarction the serum retained about 50 per cent of its activity. LDH, elevated because of hepatic or muscle damage, was almost completely inhibited if heated at 65° C for 30 minutes.

We have found the use of the battery serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), and total LDH a valuable indicator of heart, liver and some other diseases.[2] The work reported in this study was conducted to learn if the use of heat stable LDH was a more reliable means of detecting specific tissue damage than the determination of SGOT, SGPT and total LDH.

Methods and Materials

SGOT was measured by the spectrophotometric method of Karman, Wroblewski, and LaDue.[3] SGPT was measured by the method of Wroblewski and LaDue.[4] LDH was determined by the procedure of White.[5] The Beckman DU was the spectrophotometer used and readings were made in 1 cm cuvettes. Because of the uncertain stability of these enzymes, all measurements were made within a few hours after the blood sample was drawn. Heat stable LDH was that activity remaining after the serum was heated at 60° C for 60 minutes.[6] Other biochemical data were taken as needed to fully evaluate the condition of the patients.

* From the H. L. Snyder Memorial Research Foundation, Winfield, Kansas.

Normal values for SGOT, SGPT and total LDH were determined on a large number of healthy controls. Normal heat stable LDH was determined on 24 healthy controls. To determine the coefficient of variation of LDH, 31 analyses were done on a single pool of serum.

SGOT, SGPT, total LDH and heat stable LDH activities were measured on the following patients: ten with acute myocardial infarctions; eight with heart disease other than myocardial infarction; nine with diseases of the hepatobiliary system; and 11 with diseases other than those mentioned above.

Results

Table 1 gives the normal data for the enzymes under study. Also shown in the table are the number of individuals studied, mean normal, standard deviation (SD) and the normal range.

The mean of 31 LDH determinations on a single serum sample was 140.9 units/ml with 1 SD ± 9.86. The coefficient of variation (CV = 1 SD/mean × 100) was 7.0 per cent. This value is in good agreement with that of Bell.[6]

TABLE 1
NORMAL VALUES

Enzyme	*No. of Individuals*	*Mean (Units)*	*SD*	*Normal Range*
SGOT	182	14.5	3.7	<28 units
SGPT	154	9.7	3.9	<26 units
Total LDH .	139	79.6	14.9	50-130 units
Heat stable LDH	24	36.3	8.6	19-54 units
Heat stable LDH (%)	24	(37.8%)	8.0	(22-54%)

In *Table 2* are given the enzyme values for ten patients with acute myocardial infarctions. In each patient SGOT and total LDH are significantly elevated, with relatively less or no elevation of SGPT. This pattern is consistent with the clinical diagnosis of acute myocardial infarction. The heat stable LDH (whether expressed in units or per cent) is also above normal in each patient.

Table 3 gives the results of the enzyme studies in eight patients with heart diseases other than myocardial infarction. None of the patients had heat stable LDH values above normal. Only one patient, D.S., had slightly below normal (21%) heat stable LDH. This patient had arteriosclerotic heart disease and malnutrition. Each of the eight patients had above normal total LDH.

TABLE 2
MYOCARDIAL INFARCTIONS

Patient	*SGOT Units*	*SGPT Units*	TOTAL UNITS	*LDH* AFTER HEAT UNITS	PER CENT STABLE
A.C.	66	39	245	135	55
B.R.	39	11	174	110	63
E.J.	250	16	652	418	64
F.C.	40	14	171	139	81
L.N.	147	37	416	267	64
L.E.	177	19	414	317	77
N.V.	66	10	150	111	74
O.F.	226	30	491	362	74
S.J.	177	25	273	230	84
W.J.	96	18	166	118	71
Normal ...	<28	<26	50-130	19-54	22-54

In *Table 4* are the results of the enzyme studies in nine patients with diseases of the hepatobiliary system. The highest values for SGOT and SGPT are in the two patients with infectious hepatitis and in C.R., with hepatorenal syndrome. As can be seen from the table, elevated SGOT and SGPT occur in every patient. Total LDH activity is relatively less elevated than either SGOT or SGPT in all patients in this group. Heat stable LDH is generally lower than in healthy controls but in only three samples was it below the lower limit of normal.

In *Table 5* are given the results of the enzyme studies in 11 patients with miscellaneous diseases. The per cent heat stable LDH values are in the normal range except in B.E. and M.D. These two individuals had values below the normal range. There are too few individuals with any one diagnosis to draw conclusions as to the cause of the abnormal enzyme levels.

Discussion

In the patients with myocardial infarctions, the same information is gained whether one considers the relative pattern of SGOT, SGPT and total LDH or if one considers the heat stable LDH. The expression of heat stable LDH as per cent of activity remaining after heating 60° C for 60 minutes is, like the expression of any data as per cent, weakened by the fact that two coefficients of variation are involved. The lowest per cent stable LDH in our group of patients with myocardial infarction (55 per cent for A.C.) is probably reflecting the complication of liver

TABLE 3

HEART DISEASES OTHER THAN MYOCARDIAL INFARCTIONS

Patient	SGOT Units	SGPT Units	LDH TOTAL UNITS	LDH AFTER HEAT UNITS	LDH PER CENT STABLE	Diagnosis
C.C.	46	36	156	74	47	Hypertensive cardiovascular disease, arteriosclerotic heart disease, congestive heart failure, liver congestion
M.L.	26	7	168	90	54	Arteriosclerotic heart disease, congestive heart failure; bleeding gastric ulcer; cholelithiasis
M.R.	11	7	162	52	32	Arteriosclerotic heart disease, congestive heart failure; perforated peptic ulcer with pancreatitis
D.S.	51	52	178	37	21	Arteriosclerotic heart disease; malnutrition
P.A.	17	11	196	79	40	Arteriosclerotic heart disease; angina
S.M.	22	11	211	73	35	Arteriosclerotic heart disease; chronic heart failure
T.M.	33	11	156	73	47	Arteriosclerotic heart disease; diabetes
S.S.	18	8	136	48	35	Aortic stenosis; angina
Normal	<28	<26	50-130	19-54	22-54	

congestion. The SGPT value is above normal in this patient.

Bawer and Wroblewski[7] report some elevation in total LDH in congestive heart failure. We have often observed elevation of total serum LDH in this condition.

The per cent heat stable LDH tends to be below normal in patients with diseases of the hepatobiliary system. However, there is too much overlap between the heat stable LDH in these patients and control values for the test to be a reliable indicator of liver disease. This observation is in agreement with that of Bell.[6]

Different investigators have used different experimental conditions to measure heat stable LDH. Bell made a study to establish the time and temperature of incubation of serum which would best distinguish myocardial LDH from hepatic LDH. His work indicated that the incubation of serum at 60° C for 60 minutes gave the greatest differentiation between myocardial and hepatic LDH. Karl and Peters[8] determined thermal stability of LDH in nine human

TABLE 4

DISEASES OF THE HEPATOBILIARY SYSTEM

Patient	SGOT Units	SGPT Units	LDH TOTAL UNITS	LDH AFTER HEAT UNITS	LDH PER CENT STABLE	Diagnosis
E.C.	1280	360	168	68	41	Infectious hepatitis
J.G.	2540	575	214	39	18	Infectious hepatitis
W.C.	49	19	215	78	36	Cholelithiasis
P.D.	369	204	339	50	15	Cholelithiasis
A.P.	858	462	313	30	10	Common duct stone
M.R.	165	176	137	30	22	Acute cholecystitis
C.R.	1220	760	254	47	19	Hepatorenal syndrome
L.T.	55	32	158	60	38	Alcoholic fatty metamorphosis of liver
W.R.	87	66	188	49	26	Alcoholic fatty metamorphosis of liver
Normal	<28	<26	50-130	19-54	22-54	

TABLE 5

MISCELLANEOUS DISEASES

Patient	SGOT Units	SGPT Units	LDH TOTAL UNITS	LDH AFTER HEAT UNITS	LDH PER CENT STABLE	Diagnosis
B.E.	31	33	161	32	20	Chronic myeloid leukemia
C.D.	28	22	156	53	34	Migratory thrombosis
H.C.	45	7	155	69	45	Fever undetermined origin; chronic brain syndrome, mild
L.M.	34	13	342	150	44	Chromophobe adenoma of pituitary, resected
L.L.	83	18	192	62	32	Myocardial contusion, skeletal contusion
M.D.	15	8	204	35	17	Diabetic nephrosclerosis
N.C.	22	6	220	85	39	Mumps
O.R.	136	119	145	59	41	Metastatic carcinoma of colon
R.L.	44	10	185	72	39	Adrenal failure; acute, chronic rheumatoid arthritis
S.G.	15	7	190	84	44	Carcinomatosis, on 5-Fluorouracil
W.W.	143	66	241	65	27	Burns of legs; luetic aortic insufficiency
Normal	<28	<26	50-130	19-54	22-54	

tissues. Suspensions of the tissues (each diluted with both normal saline and normal plasma) were studied for thermal stability by heating the sample to 58° C for 60 minutes. These authors found thermal stability to decrease in the following order: red blood cells, heart, kidney, brain, lung, lymphoid tissue (tonsil), intestinal mucosa, skeletal muscle and liver. Wroblewski and Gregory[9] utilized the differential heat stabilities of serum activity at room temperature, at 57° C and at 65° C. Because of the differences in techniques, the results of the various investigators cannot be compared directly. However, each study has found LDH of heart origin the most resistant to heat and that of liver origin the most sensitive.

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LDH Isozymes

The Diagnostic Value of Serum Lactic Dehydrogenase Isozymes

C. S. REUSCH, M.D. *and* LEITHA D. BUNCH, M.A., *Winfield**

LACTIC DEHYDROGENASE (LDH) in serum is a mixture of isozymes, with similar chemical activity but different electrophoretic behavior.[1-3] Starch or agar gel and paper have been successfully used as supporting mediums. Cellulose acetate has been found a satisfactory supporting medium by several investigators.[4-6] The Gelman Instrument Company includes a method for determining LDH isozymes on Sepraphore III in their manual.

We have found the battery of serum tests glutamic oxalacetic transaminase (SGOT), glutamic pyruvic transaminase (SGPT) and total LDH, gave very satisfactory information in the diagnosis of acute myocardial infarction, diseases of the hepatobiliary system and some other diseases.[8] We are reporting here the results of LDH isozymes in various diseases and comparing these results with the SGOT, SGPT and total LDH values in a series of patients.

Methods and Materials

SGOT was measured by the method of Karman, Wroblewski and LaDue.[9] SGPT was measured by the method of Wroblewski and LaDue.[10] LDH was determined by the procedure of White.[11] The Beckman DU was the spectrophotometer used and readings were made in 1 cm cuvettes. LDH isozymes were done by the method given in the Gelman manual. After the strips were stained and cleared, they were read with a Beckman Analytrol equipped with a 500 mμ filter and a Gelman Scan-A-Tron adapter. The zymograms were also inspected by simple visual means along with a normal pattern and the results expressed as increased (+ to ++++) or by normal (N). Because of the uncertain stability of the enzymes under study, all determinations were done within a few hours after the blood sample was drawn.

It is unfortunate that the numbering of the LDH isozymes in different laboratories has not been uniform. In the work reported here "fraction 1" is the fastest moving and "fraction 5" is the slowest moving component.

LDH zymograms were made on eight healthy controls. The results agreed well with those of Mager, et al.[12] The ranges of the various isozymes used as normal values are those of Mager. Normal values for SGOT, SGPT, and total LDH were determined in our laboratory on over 100 healthy individuals. The patients studied were: nine with myocardial infarctions; five with heart diseases other than myocardial infarctions; six with diseases of the hepatobiliary system; and 12 with miscellaneous other diseases.

Lactic dehydrogenase isozymes, along with SGOT, SGPT and total LDH values are reported on patients with various diseases. Sepraphore III was the medium used for the zymograms. We did not find that LDH isozyme determinations, by the method used, contributed to the diagnosis.

Results

In *Table 1* are the results obtained in nine individuals with acute myocardial infarctions. Normal values are also shown at the bottom of the table. In every case the per cent of the fast moving fraction of LDH (Isozyme 1) was above normal. Total LDH was elevated in each patient and SGOT in every patient except S.J. By gross visual inspection, fraction 2 was increased in each of the nine patients but in no case was the per cent of fraction 2 above the normal range. This is due to the fact that the increase in fraction 1 overshadows the increase in fraction 2 when the data is presented as per cent.

In *Table 2* are shown the observations in five patients with heart diseases other than myocardial infarctions. In each case, except D.S., there is some increase in the fast moving LDH isozyme. SGOT and SGPT were slightly elevated in two of these patients. LDH values were elevated in each of the five individuals.

In *Table 3* are the results of the enzyme studies in six patients with diseases of the hepatobiliary sys-

* From the H. L. Snyder Memorial Research Foundation, Winfield, Kansas.

TABLE 1

MYOCARDIAL INFARCTIONS

Patient	SGOT Units	SGPT Units	Total LDH Units	LDH Isozymes (Per Cent) 1 FAST	2	3	4	5 SLOW
B.J.	940	66	2040	67	29	3	t*	t
				++++	++	N	N	N
E.J.	250	16	652	55	38	7	0	0
				++++	+++	N	N	N
E.S.	234	15	448	64	14	22	0	0
				++++	++	+	N	N
H.W.	32	11	250	57	33	8	t	0
				++++	++	N	N	N
L.N.	147	37	416	48	42	9	t	0
				++++	+++	N	N	N
L.J.	88	22	296	71	37	1	t	t
				++++	++	N	N	N
O.F.	226	30	491	55	36	9	t	0
				++++	+++	N	N	N
M.R.	198	231	310	58	40	t	t	t
				+++	++	N	N	N
S.J.	12	5	204	69	29	1	t	t
				++++	++	N	N	N
Normal	<28	<26	50-130	25-39	29-49	16-32	0-6	0-4

* Trace

TABLE 2

HEART DISEASES OTHER THAN MYOCARDIAL INFARCTIONS

Patient	SGOT Units	SGPT Units	Total LDH Units	LDH Isozymes 1 FAST	2	3	4	5 SLOW	Diagnosis
C.C.	46	36	156	+	+	N	N	N	Hypertensive cardiovascular disease, arteriosclerotic heart disease, congestive heart failure, liver congestion
D.S.	51	52	178	N	+	+	N	N	Arteriosclerotic heart disease; malnutrition
M.L.	26	7	168	+	+	N	N	N	Arteriosclerotic heart disease, congestive heart failure; bleeding gastric ulcer; cholelithiasis
M.R.	11	7	162	+	++	N	N	N	Arteriosclerotic heart disease, congestive heart failure; perforated peptic ulcer with pancreatitis
S.M.	22	11	211	++	++	+	N	N	Arteriosclerotic heart disease, chronic heart failure
Normal	<28	<26	50-130						

TABLE 3

DISEASES OF THE HEPATOBILIARY SYSTEM

Patient	SGOT Units	SGPT Units	Total LDH Units	LDH Isozymes 1 FAST	2	3	4	5 SLOW	Diagnosis
C.D.	780	600	229	N	N	N	++	+++	Infectious hepatitis
C.W.	60	50	247	N	N	N	N	++	Cholelithiasis
D.P.	369	204	339	N	N	N	N	+++	Cholelithiasis
R.W.	87	66	188	N	N	N	N	N	Alcoholic fatty metamorphosis of liver
P.A.	858	462	313	N	N	N	N	++++	Common duct stone
R.M.	165	176	137	N	N	N	N	N	Acute cholecystitis
Normal	<28	<26	50-130						

tem. SGOT and SGPT were elevated in each patient. R.W. and R.M. showed normal isozyme distribution. The other four patients showed definite increase in the slow (fraction 5) LDH isozyme.

In *Table 4* are given the results on 12 patients with miscellaneous diseases. Of particular interest are the findings in H.A. There was great increase in fraction 5 in this patient who had obstructive hepatocellular damage and kyphoscoliotic heart disease. This observation and the very high values in SGPT and SGOT point to liver necrosis. He.A. with pernicious anemia showed high elevation in fraction 1. Fraction 1 is the isozyme elevated in red cell hemolysate and has been reported by others[4, 13, 14] to be high in pernicious anemia. Without more data on patients with the same pathology as represented here, no interpretations on the various zymograms can be made.

Discussion

Our results agree in general with those reported by others.[2, 3, 5, 13, 14] The fast moving fraction is elevated in myocardial infarction, pernicious anemia and leukemia. The slow moving isozyme is increased in diseases causing hepatic necrosis or skeletal muscle damage. The zymograms show various patterns in neoplasms.

TABLE 4

MISCELLANEOUS DISEASES

Patient	SGOT Units	SGPT Units	Total LDH Units	LDH Isozymes 1 FAST	2	3	4	5 SLOW	Diagnosis
H.A.	3360	1650	1330	N	N	N	N	++++	Obst. hepatocellular damage, kyphoscoliotic heart disease
He.A.	15	10	422	++++	N	N	N	N	Pernicious anemia
K.C.	14	42	218	+++	++++	N	N	N	Acute myeloid leukemia
W.J.	79	22	1290	+	++++	+	N	N	Acute lymphoid leukemia
B.E.	31	33	161	+	++	+	N	N	Chronic myeloid leukemia
B.D.	19	6	199	++	+	+	N	N	Pernicious anemia
B.I.	64	15	510	N	+++	++	N	N	Renal cell carcinoma, metas. to liver
C.H.	35	12	644	N	+++	+	++	N	Primary lung carcinoma, metas. to liver
C.D.	44	56	150	N	N	+	++	++	Migratory thrombophlebitis
L.M.	34	13	342	+	+++	+	N	N	Chromophobe adenoma pituitary, resected
N.C.	22	6	220	+	+	+	N	N	Mumps
W.W.	143	66	241	+	+	+	+	+++	Thermal burns, heart failure
Normal	<28	<26	50-130						

The technique by the Gelman method is tedious and subject to many errors. From our limited experience with the use of agar or starch gel as the supporting medium, more definitive results are obtained with these materials. This is probably due to the fact that a larger amount of the test serum can be applied.

Jordan and White[15] point out that the optimum substract concentration (lactate) differs for the different isozymes. Temperature, voltage and time are all critical in the determination.

SGOT, SGPT and total LDH give more reliable information than LDH isozymes by the method used. We feel, at the present time, that without equipment and staff to separate LDH isozymes by gel electrophoresis or column chromatography, LDH isozyme determinations are impractical and can easily give false results.

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AMA SERVICE BRIEFS

Complementing the five-point rural emergency medical services plan recently developed by the AMA's Council on Rural Health is its vital sequel—"Guidelines for Implementation. . . ."

This essential aid affords countless serviceable suggestions which no doubt will prove instrumental in achieving the desired results long sought by rural community leaders. Its four pages are brimming with ideas relative to organizational structure, mechanisms by which presently existing emergency systems may be evaluated and general recommendations with regard to first aid, communications and transportation. Single copies may be obtained—at no cost—from the Council on Rural Health, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610.

* * *

A physician may not accept a gift such as a radio, compact refrigerator, or the like from a manufacturer or a distributor of drugs, remedies, appliances or services for prescribing these products for his patients.

According to the AMA Judicial Council opinion adopted in November, 1967, this practice amounts to rebating. The Council further states that it is ethically improper because it could influence the physician to prescribe the donor's product. If a product or service is prescribed for its effectiveness, it would be preferable that it be discounted so that the patient, rather than the physician, benefits.

* * *

As a service to physicians the AMA has developed a second edition of "Listing of Group Practices in the United States," which was originally published in 1959.

The new 189-page edition contains approximately 5,000 names of medical groups including three or more physicians as defined in "Group Practice Guidelines." Extensive efforts have been made to list all existing medical groups satisfying this definition. Assistance was provided by the American Association of Medical Clinics and Medical Group Management Association.

Groups, including those in Puerto Rico, are listed by the categories, "Single Specialty," or "Multiple Specialty."

Single copies are offered without charge to AMA members. For others it is available at $1 per copy through the AMA's Department of Health Care Services, 535 North Dearborn, Chicago, Illinois 60610.

Serum Enzyme Studies—

—*in Infectious Mononucleosis*

C. S. REUSCH, M.D. *and* LEITHA D. BUNCH, M.A., *Winfield**

HEPATIC FUNCTIONAL IMPAIRMENT is nearly universal in infectious mononucleosis.[1] A search of the literature did not show that serum heat stable lactic dehydrogenase or lactic dehydrogenase isozymes had been studied in this disease. This paper reports serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvate transaminase (SGPT), total lactic dehydrogenase (LDH), heat stable LDH and LDH isozymes in patients with infectious mononucleosis.

The methods used are the same as those indicated in the two preceding papers in this journal. All patients had heterophile titers positive at a dilution greater than 1:56. Each patient had the characteristic clinical picture of infectious mononucleosis.

In *Table 1* are shown the results in 12 patients in whom heat stable LDH was done. The range of per cent heat stable LDH was 13-48, lower than the normal range of 22-54 per cent. Four of the samples studied had below normal heat stable LDH. SGOT and SGPT values were above normal in every patient except K.J. and S.K.

In *Table 2* (page 254) are shown the LDH isozyme values, along with SGOT, SGPT and total LDH in 19 patients. Fraction 1 of the isozymes is the fastest moving isozyme and fraction 5 the slowest. Eight of the patients had increased 4 and 5 isozymes and five had increased fraction 2. All patients in this group, except B.W., K.J. and S.K., had above normal SGOT and SGPT values. All 19 patients had above normal total LDH.

LDH of hepatic origin is the most sensitive to heat and is the slowest moving isozyme in the electrophoretic method used. If liver infiltration is the cause of the total LDH elevation in infection in infectious mononucleosis, the per cent heat stable LDH should be low and there should be an increase in the slow moving isozyme. That this is not the case leads one to suspect that the source of the serum LDH elevation is not entirely of liver origin.

0.6 gm. (wet weight) of fresh lymph node was mixed and homogenized both with saline and with normal serum. The saline homogenate had no LDH activity after heating 60° C for 60 minutes. The serum homogenate retained 19 per cent of its activity after heating (corrected for LDH activity of serum). The lymph node homogenates did not give distinctive zymograms but the activity was distributed in fractions 1, 2, and 3.

Vesell[2] reports that most of the LDH activity in white blood cells is in fraction 2 (49% ± 5) and fraction 3 (33% ± 6). We found no correlation between white cell counts and zymograms or white cell counts and heat stable LDH in our series of patients. There was no correlation between heterophile titers and heat stable LDH or LDH isozyme patterns.

TABLE 1

HEAT STABLE LDH IN INFECTIOUS MONONUCLEOSIS

Patient	*SGOT Units*	*SGPT Units*	TOTAL UNITS	*LDH* AFTER HEAT UNITS	PER CENT STABLE
A.K.	157	150	266	43	16
D.D.	97	96	275	132	48
G.J.	43	28	150	72	48
H.J.	53	48	310	150	48
H.K.	64	77	218	74	34
K.J.	14	11	231	35	15
L.V.	44	24	428	56	13
M.C.	53	90	152	66	43
M.R.	174	130	316	82	26
R.J.	85	58	157	68	43
S.K.	17	9	188	69	37
T.L.	250	215	160	55	34
Normal	<28	<26	50-130	19-54	22-54

The LDH isozyme patterns were varied and the heat stable LDH values were normal in most patients with infectious mononucleosis. The information gained by either of these procedures is not definitive. Total LDH values are so consistently elevated in this disease that they may contribute to the diagnosis.

References

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* From the H. L. Snyder Memorial Research Foundation, Winfield, Kansas.

TABLE 2

LDH ISOZYMES IN INFECTIOUS MONONUCLEOSIS

Patient	*SGOT Units*	*SGPT Units*	*Total LDH Units*	*LDH Isozymes* 1 FAST	2	3	4	5 SLOW
A.K.	157	150	266	N	N	N	++	+++
B.W.	11	11	166	+	+	N	N	N
C.C.	50	66	182	N	N	N	+++	++
C.R.	79	115	203	N	N	N	+++	+++
D.J.	32	33	223	N	N	N	N	N
D.D.	97	96	275	N	N	N	N	N
E.L.	82	53	218	N	N	N	++	+++
G.J.	43	28	150	N	N	N	N	N
H.J.	55	48	310	N	N	N	++	+++
H.K.	64	77	218	N	N	N	N	N
K.J.	14	11	231	N	N	N	N	N
K.N.	39	22	143	+++	++	+	N	N
L.V.	44	24	428	+	++	++	++	+
L.J.	58	39	220	+	++	N	N	N
M.P.	33	10	147	N	N	+	++	++
M.C.	53	90	152	N	N	N	N	N
M.R.	174	130	316	+	+	+	++	+++
S.K.	17	9	188	N	++	N	N	N
T.L.	250	215	160	N	N	N	N	N
Normal	<28	<26	50-130					

REFERENCE LISTS

How long should reference lists be? There is rather general agreement that in most of the articles in state journals a list of five or six references will usually be adequate. Except in special review articles, or research articles, complete lists of references are not needed, and, in fact, are out of place. A general guide is to include in a reference list: (1) Only articles which have actually been read in the original (not an abstract or a translation) and (2) Only articles which are actually mentioned in the text of the paper.

How many reference numbers should be in the text? Remembering that they are distracting to the reader as he goes through the article, they should be eliminated if they serve no purpose. If a quoted author appears in the reference list only once, it is obvious that this is the article to which reference is made, and no "superior number" is necessary for it cannot be confused. Papers are written to be read, and it is desirable to keep them interesting and to avoid distractions whenever possible.

Law-Medicine Comment

The Physician-Patient Relationship: Rights and Obligations

M. MARTIN HALLEY, M.D., J.D.,* ***Topeka***

THE PHYSICIAN-PATIENT RELATIONSHIP begins when the physician, in response to an expressed or implied request to treat or aid in the treatment of a patient, undertakes to render services. The relationship ordinarily continues throughout an illness, or until it is ended by consent of the parties, or by dismissal or withdrawal of the physician.[1] Although the relationship generally emphasizes the patient's rights and the physician's obligations, the patient's reciprocal obligations should also be remembered. These include the duty to pay for services, the duty to make full disclosure of pertinent information, and the duty to follow the physician's recommendations. The following analysis identifies the major components of the relationship.

Proper Medical Care

The law has placed implied warranties, based on considerations of public policy, into the physician-patient relationship. These warranties are evident in many court opinions, and contain the concept of "reasonable care" in matters involving the physician's qualifications and practice.

The Colorado Supreme Court (1967) stated that in the absence of special contract, the law implies that a surgeon employed to treat an injury contracts with his patient that he possesses that reasonable degree of skill and learning which is ordinarily possessed by others of the profession; that he will use reasonable and ordinary care and diligence in the exercise of his skill and in the application of his knowledge to accomplish the purpose for which he is employed; and that he will use his best judgment in the application of his skill in deciding upon the nature of the injury and the best mode of treatment. The Kansas Supreme Court is in accord, as seen below.

Fiduciary Capacity

The physician stands in fiduciary capacity in respect to his patient, making his status essentially that of a trustee. The relationship therefore involves great confidence, trust, and the utmost good faith not only in professional matters but in all other relations between the parties. Fiduciary duties include the duty of loyalty, the duty to account for activities, the duty to use reasonable care and skill, and the duty to act solely for the benefit of the other person. These concepts occur in parallel fashion in the physician-patient relationship. Fiduciary functions, moreover, are personal in nature, may be delegated only if ministerial and not discretionary, and may not be improperly terminated. Analogous obligations in the physician-patient relationship require the patient's consent to the delegation of functions involving medical skill or judgment, although qualified and competent substitute physicians are generally acceptable when the physician himself is unavailable. The physician's duty to explain and disclose, which appears in the doctrine of informed consent,[2] might also be considered in this area.

The major components of the physician-patient relationship are proper medical care, fiduciary capacity, confidentiality, privilege, and right of privacy. A discussion of current legal authority is presented.

A California decision (1954) involved a leg injury ultimately resulting in amputation of the extremity. The court stated that the defendant physicians, as fiduciaries, had the duty to make a full and fair disclosure to the plaintiff patient of all facts which materially affected his rights and interests. The confidence growing out of the relationship of doctor and patient imposed upon the physician the duty of refraining from fraudulent concealment. This referred to the physician's duty of disclosure when he had knowledge of the facts. The court stated that where the duty to disclose exists, the disclosure must be full and complete, and any material misrepresentation or concealment will amount to fraud sufficient to entitle the injured party to an action.

A Missouri decision (1961) held an operative permit for dental surgery inadequate. The court stated that a physician occupies a position of trust and confidence as regards his patient. It is his duty to act

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with the utmost good faith. This duty of the physician flows from the relationship with his patient, and is fixed by law, not by the contract of employment. The court stated that the law's exaction of good faith extends to all dealings between the physician and the patient, so that all transactions between them are closely scrutinized by the courts, which must be assured of the fairness of these dealings. In regard to any contract between the physician and the patient, it is therefore the rule that the physician has the burden of proving that the patient entered into it voluntarily and advisedly, and without undue influence.

A Pennsylvania decision (1962) involved a personal injury action following an automobile accident. A neurosurgeon, who had examined the patient, had sent a medical report to the physician employed by the opposing attorney, without the patient's consent. The court commented that members of the medical profession stand in a confidential relationship or fiduciary capacity as to their patients; that they owe their patients more than just medical care; that there is a duty of total care, which includes a duty to aid the patient in litigation, to render reports when necessary, to attend court when needed, and to refuse affirmative assistance to the patient's antagonists in litigation. The court stated that the doctor, of course, owes a duty to speak the truth, but that he need speak only at the proper time.

Confidentiality

The relationship between the physician and his patient is a confidential one, thus encouraging the complete disclosure necessary for effective medical care. Violation of professional confidence by unauthorized disclosure of information, most commonly involving medical reports to third parties, may give the patient a cause of action against the physician. Unauthorized disclosures may also violate medical ethics, and may be grounds for revocation of the physician's license to practice his profession. The applicable Kansas statutes list willful betrayal of confidential information as unprofessional conduct, which is one ground for suspension or revocation.[3]

Confidentiality, an infrequent subject of litigation, has been limited by the law through various requirements of medical reports to public agencies in public health, vital statistics, or crime. It has further been restricted by judicial action in permitting private communications when the interest in disclosure is found to be greater than the patient's right to secrecy. Potential liability and litigation relating to this subject should be avoidable by securing proper authorization for the release of medical information.

A New Jersey decision (1962) involved the disclosure of a child's autopsy results to an insurance company without the parents' consent. The court, in holding for the physician, stated that ordinarily a physician receives information relating to a patient's health in a confidential capacity and should not disclose such information without the patient's consent except where the public interest or the private interest of the patient so demands. The court continued that generally disclosure may be made under compelling circumstances to a person with legitimate interest in the patient's health. The physician was said to have a general duty not to disclose frivolously the information received from his patient, and the patient to have a limited right against disclosure, subject to exceptions prompted by the superior interests of society.

A New York opinion (1966) involved the submission to an insurance company of an unauthorized and incorrect report. The court stated that the furnishing of the report, without the patient's authorization, was an unlawful violation of the confidential physician-patient relationship, and that a cause of action existed for breach of the relationship.

Privilege

Privileged communications are confidential communications between the physician and his patient, arising out of their relationship. Disclosure of such communications cannnot be compelled in judicial proceedings without the consent of the holder of the privilege, namely, the patient. Since all privileges tend to prevent reliable evidence from being admitted in legal proceedings, the general tendency is toward limitation. The privilege has no application to felony cases. It does not apply when information is required in reports to public officials, when the physician's services were not engaged for purposes relating to treatment, or if the physician's services were obtained to aid in the commission of a crime or tort, or to escape detection or apprehension after the commission of a crime or tort. The privilege does not exist when the condition of the patient is an element of the legal claim or defense, in litigation involving the patient or parties claiming under him. This area is usually regulated by statutory law, as in Kansas,[4] and is variable from state to state.

Right of Privacy

This right, infrequently involved in litigation, is defined as the right to be let alone, to live one's life in seclusion without being subjected to unwarranted and undesired publicity. It is not specific to the physician-patient relationship and may be waived by expressed consent or by consent implied from the circumstances. Violation of the right in medical affairs may occur through such acts as unauthorized use of the patient's picture or name, admission of nonessential persons to medical procedures, or by unauthorized publication of information.

A Missouri decision (1942) resulted from an il-

lustrated article in a national news magazine, concerning an obese patient who had been hospitalized in Kansas City for weight-reducing purposes. The court stated that if there is any right of privacy at all, it should include the right to obtain medical treatment at home or in a hospital for an individual condition (at least if not contagious or dangerous to others) without personal publicity.

Kansas Decisions

The Kansas Supreme Court (1961) stated that once the physician-patient relationship is established by contract, either expressed or implied, certain warranties and obligations are implied in law.[5] A more definite concept of these warranties and obligations appears in a 1957 decision involving the death of a wife during childbirth.[6] In affirming the holding for the physician and the hospital, the court stated:

"The relationship between the physician and his patient implied in law is that he possesses that reasonable degree of learning and skill ordinarily possessed by members of his profession and of his school of medicine in the community where he practices, or in similar communities, having due regard for advance in medical and surgical science at the time, and that he will use such learning and skill in his treatment of the patient with ordinary care and diligence. This rule is elementary and is founded on considerations of public policy, its purpose being to protect the health and lives of the public. In case of doubt as to which of two or more courses of treatment is to be pursued a physician is bound to use his best judgment."

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3. K.S.A. 65-2836; 65-2837.
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5. 189 Kan. 6, 367 P2d 61 (1961).
6. 181 Kan. 107, 309 P2d 636 (1957).

PREPARATION OF MANUSCRIPTS FOR THE JOURNAL

Exclusive Publication: Articles are accepted for publication on condition that they are contributed solely to this Journal. Publication elsewhere will be subsequently authorized in the discretion of the Editor.

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Footnotes and References: Use the style of the *Quarterly Cumulative Index Medicus* published by the American Medical Association, which requires, in the order given: name of author, title of article, name of periodical, with volume, pages, month—day of month if weekly—and year as follows:

4. Doe, J. E.: What I know about it. *J. Kans. M. S.* 54:717-719, December 1954.

Include only those references specifically referred to in the text.

Reprints: An order slip for reprints with a table covering cost will be sent with the galley proof to each contributor.

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Under ordinary circumstances articles are scheduled several months in advance. Notice will be given the contributor when the article has been accepted and again before publication.

Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.



CP + T

Newsletter

Organic Phosphorus Insecticide Poisoning

Incidence

ORGANOPHOSPHORUS (OP) INSECTICIDE POISONING can and does occur throughout the year but the incidence is increased during periods of peak agricultural use. Locally, this period probably starts with the use of OP insecticides to control resistant corn rootworms in May and extends into the late fall with the use of these agents in orchards. Even during these periods, however, most cases of severe poisoning result from accidental rather than occupational exposure and, as is the situation with other types of poisoning, occur most frequently in young children. The mortality rate for poisoning by pesticides of all types is estimated to be about one per 1,000,000 population, but most of these deaths are due to the older agents (metals, phosphorus, etc.) rather than the new types of agents (OP compounds, chlorinated hydrocarbons, carbamates, etc.). Pesticides account for about 10 per cent of all deaths due to solid and liquid substances and there has been no distinct trend towards an increase during the past 25 years in spite of the development and increasing use of a large variety of new agents.[1] The production of OP insecticides is increasing (over 120,000,000 pounds in 1966) as is that of Carbaryl, which also inhibits cholinesterase, whereas the consumption of DDT in this country is decreasing. The sales of synthetic organic insecticides now account for about one-half of the value of all organic pesticide sales, and the OP compounds represent about 25 per cent of the total.[2] The contribution of the OP compounds to the morbidity rate of poisoning is probably much greater than their contribution to the mortality rate, particularly if one includes all of the individuals that get a significant occupational exposure but do not show overt symptoms such as may occur among pesticide formulators, professional exterminators, aerial spray pilots and markers, and a variety of other agricultural workers.

There is often considerable variation in both the morbidity and mortality associated with OP insecticide poisoning in different localities, and this is dependent not only on whether a community is located in an agricultural area but also on the type and purposes for which the OP insecticides are being used in that area. In a recent survey of the incidence of OP insecticide poisoning in Dade County, Florida, it was found that during the period of 1956 through 1965, pesticides were exceeded only by drugs and alcohol as a cause of fatal poisoning and, in children under five, pesticides were the leading cause of such deaths.[3] Parathion was the chief offender among the OP insecticides and there was a progressive increase in the number of fatal poisonings with this agent during the period examined. In evaluating these studies, Dr. Davis suggests that the occurrence of OP insecticide poisoning is probably being seriously underestimated in this country since the clinical signs of intoxication can be confused with other disease entities with which the physician or nurse may be more familiar. Irrespective of the validity of this evaluation, poisoning by the OP insecticides provides the physician with a situation in which a higher index of suspicion, background knowledge of the community, and familiarity with the symptoms and treatment of exposure can be expected to have a greater influence on the mortality statistics than with most other types of poisoning.

Symptoms

There are over one hundred different OP insecticides currently being marketed and, although they all produce their effects by the same mechanism of

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

action (inhibition of cholinesterase activity), they differ considerably in inherent toxicity. The acute oral lethal dose of Parathion, for example, is only 1/100 that of Malathion but is over ten times that of TEPP (on a molar basis TEPP is more toxic than the nerve gases Sarin and Tabun). Their toxicity is also influenced by the type of formulation (liquid or solid preparation), the vehicle, and the route of absorption (lungs, gastrointestinal tract, or skin). With the highly toxic, direct acting OP insecticides, a drop or two splashed in the eyes could be fatal. Some of the OP insecticides produce their effects directly (TEPP, Phosdrin, etc.), whereas others are not active until they have been altered by chemical or enzymatic change (Parathion, Malathion, etc.). Agents, such as the chlorinated hydrocarbons and certain hepatotoxins, which influence the metabolism of the OP insecticides may either increase or decrease their toxicity depending on whether they stimulate the activation or the detoxification and excretion of the OP compound. The toxicity of the OP insecticides may be increased by prior exposure to phenothiazines, theophyllines, succinylcholine, other cholinesterase inhibitors or parasympathomimetics. Exposure to some combinations of OP insecticides, eg., Malathion plus EPN, produces in animals a more than additive effect (potentiation). In animals, some of the OP insecticides show a remarkable variation in response depending on sex and age. The age difference, at least, also occurs in man since children have been killed in accidents where people of all ages ate the same contaminated food and the adults showed only minimal symptoms.

The clinical manifestations of OP insecticide poisoning can be grouped in relation to whether the effects are muscarinic (overstimulation of the parasympathetic nervous system), nicotinic (myoneural junction stimulation), or central nervous system effects. The muscarinic effects are usually the first to appear and may include anorexia, nausea, sweating, epigastric and substernal tightness (possibly due to cardiospasm), and heartburn. More severe exposure may produce abdominal cramps, vomiting, diarrhea, salivation, lacrimation, profuse sweating, pallor, dyspnea and, perhaps, audible wheezing. Miosis may be present but is not a constant feature and occasionally mydriasis may occur. Involuntary micturition and defecation, excessive bronchial secretions, and pulmonary edema are also seen in severely poisoned individuals. The sequence of symptoms, their severity and rapidity of onset varies with the compound and with the route and magnitude of exposure. Gastrointestinal effects are usually the first symptoms after ingestion, sweating and sometimes muscle fasciculation after dermal exposure, and respiratory effects after inhalation. The nicotinic effects of the OP insecticides usually appear after the muscarinic effects have reached moderate severity and include muscular twitching, fasciculation and cramps, and mild generalized weakness which is increased with exertion. Severe exposure produces a pronounced weakness of all muscles, including those of respiration, and mild to moderate elevation of the blood pressure may occur. Among the central nervous system effects of the OP insecticides are included such complaints as apprehension, restlessness, giddiness, emotional lability, and headache (which may be due to paranitrophenol production or to the mercaptan odor of some agents). These symptoms may be the only complaints in minimal exposure and with continued mild exposure may progress to insomnia, excessive dreaming, difficulties in concentration, poor memory, drowsiness, and confusion. With more severe exposure, tremors, ataxia, slurring of words, convulsions and coma may occur. Death usually results from respiratory failure which is brought about in several ways. As mentioned previously, the OP insecticides cause bronchoconstriction, excessive pulmonary secretions and edema, and paralysis of the respiratory musculature. They also depress the respiratory center and may produce bradycardia and various degrees of A-V block. Some of the OP compounds (tricresyl phosphate for example) produce a delayed paralysis due to demyelination of the spinal cord. In addition to the systemic effect of the OP insecticides, these agents may also produce local effects in the eye (miosis, pressure sensations, headache, conjunctival hyperemia, etc.), on the skin (muscular fasciculation and sweating in the contaminated area), and direct effects on the respiratory and gastrointestinal tracts. Chronic poisoning, as such, does not occur with the OP insecticides, but repeated exposure may produce a gradual lowering of the cholinesterase activity levels which may require several months for recovery to pre-exposure levels.

OP insecticide poisoning has been confused with encephalitis, brain hemorrhage and other types of injury, heat stroke, pneumonitis, gastroenteritis, asthma, and congestive failure among others. Laboratory tests may be necessary to establish or to exclude the diagnosis of OP insecticide poisoning and are helpful in evaluating the severity of exposure and subsequent recovery. The single most valuable test is the measurement of the blood cholinesterase activity and such determinations can be carried out in autopsy material. Abnormal blood cholinesterase activity levels can occur as a result of disease, particularly liver disease; other toxic agents or drugs, such as the phenothiazines; and genetic factors. There are also differences which depend on the choice of assay method, the age of the individual, and various other factors so that the interpretation as to whether a particular value lies outside of the normal range is

not simple in minimal exposure cases. Using a manometric assay procedure with 0.1 M acetyl choline chloride as the substrate, we find, for example, a greater difference between the cholinesterase activity of human serum and erythrocytes than with the Michel (pH change) method. The blood should be heparinized and drawn before institution of any oxime therapy. Urinary levels of paranitrophenol have been used to monitor Parathion exposure in orchard workers, and other methods are available for other OP insecticides. Additional laboratory findings which may be encountered include leukocytosis and moderate albuminuria, acetonuria and glucosuria, and hemoconcentration. There are no significant gross or microscopic findings in fatal poisonings except for those associated with excessive parasympathetic stimulation and changes secondary to convulsions where these have occurred.

Treatment

Although the symptoms of OP insecticide poisoning may be delayed for several hours following occupational exposure, they usually develop more rapidly (symptoms which begin more than 12 hours after the last known exposure are probably due to some other cause). With massive exposure, death may occur within five minutes but, even in such severely poisoned individuals, prompt and energetic treatment can produce dramatic clinical recovery. In the severely poisoned individual, the recommended order of treatment is as follows:[4]

1. Artificial respiration, if required, preferably by mechanical means.
2. Atropine sulfate, 2-4 mg (1/30 to 1/15 grain), intravenously as soon as cyanosis is overcome. Repeat at 5 to 10 minute intervals until signs of atropinization appear (dry, flushed skin, and tachycardia as high as 140/minute).
3. 2-PAM (pralidoxime chloride, Protopam) slowly, intravenously; 1 gm for adults and 0.25 gm for infants.
4. Decontamination of the skin, stomach, and eyes as indicated.
5. Symptomatic treatment.

In the more usual case, the treatment may consist of:

1. Atropine sulfate, 1-2 mg (1/60 to 1/30 grain), if symptoms appear. Keep patient fully atropinized if excessive secretions appear by giving atropine sulfate every hour up to 25-50 mg/day.
2. Decontamination of skin, stomach, and eyes as indicated.
3. 2-PAM, slowly, intravenously if the patient fails to respond satisfactorily to atropine.

Oxygenation (endotracheal intubation or tracheotomy may be necessary) should precede atropinization, although several of these measures can be carried out simultaneously. Because of their high tolerance, individuals poisoned with the OP insecticides commonly receive too little atropine rather than too much, although there is a danger of atropine poisoning where the diagnosis of OP insecticide poisoning is in error. Atropine sulfate reverses the muscarinic and some of the central nervous system effects, but it does not control the nicotinic effects. Although it is an effective antidote, it merely blocks certain actions of the excess acetylcholine already accumulated and thus does not reverse the fundamental biochemical lesion in OP insecticide poisoning. The oximes (2-PAM, DAM, etc.) are specific antidotes in that they reactivate the reversibly inhibited (phosphorylated) cholinesterase and compete with the enzyme for the phosphorus in the circulating and tissue OP insecticide. The oximes are only moderately effective when given alone and, since they act in a different way than atropine, they do not interfere with each other's antidotal activity when given together in severe poisoning. Morphine or theophyllin derivatives are contraindicated and rarely, if ever, are even short-acting barbiturates justified in the management of the convulsive phase since the latter can be prevented or treated adequately with atropine and the correction of asphyxia. Close surveillance is necessary in the severely poisoned individual during the first 24 to 48 hours. A patient in whom the initial response is adequate may experience a sudden and fatal relapse when the therapy is discontinued. This is particularly important in cases of suicidal or accidental ingestion where absorption may continue over several days.

Prevention

Occupational exposure to OP insecticides can be prevented by (1) constant, thoughtful care on the part of every worker (READ THE LABEL); (2) mechanical aids such as protective clothing, masks, ventilation, etc.; and (3) regular inspection of working conditions. The prevention of accidental OP insecticide poisoning in children could be virtually eliminated if (1) pesticides were always stored under lock and key; (2) care were taken that children could not reach the poisons while they are in use; and (3) empty containers were disposed of safely. Most of the OP insecticides are degraded rapidly and seldom persist in the environment, but some, such as Parathion, have persisted for months in the soil and have been detected in water drawn from deep wells. Thus, they are not entirely free from the residue problems that have complicated the use of other pesticides such as the chlorinated hydrocarbons. Since pesticides are becoming increasingly important in projections for maintaining the welfare of expanding populations through intensified agriculture, there is

(Continued on page 264)



Student THESIS

Bone Marrow Biopsies

JEROME MELCHIOR, M.D.,* Lackland A.F.B., Texas

IN HIS NOW CLASSIC BOOK on bone marrow biopsies, S. J. Leitner attributes the first attempts at such biopsies to Pianese in 1905, who did so by trephining the tibia. Seyfarth first suggested the use of the sternum for trephining, but it was not until Arinkin introduced the sternal puncture in 1929 that bone marrow biopsies advanced from the experimental stage to make their debut into clinical medicine. Once established, the procedure spread rapidly. The many new discoveries which these studies produced served only to intensify the investigations into both morphology and function of the bone marrow.

Soon after the increase in the number of biopsies, articles began to appear in the literature reporting the finding of carcinomatous deposits in the bone marrow, eg, Passler in 1931. These prompted more studies concerning the frequency of carcinomatous deposits in marrow, the optimal site for the puncture, and the morphology of the tumor cells obtained in such procedures. As Hosley, Scharfman, and Proppi point out, the bone marrow has a unique value in diagnosing an obscure malignant condition. Marrow, lung and other organs act as filters for malignant cells that metastasize hematogenously but it is the bone marrow that is available for easy biopsy. It was with this in mind that the present research was begun, hoping to discover the value of the bone marrow biopsy in cases of malignancy, as both a diagnostic tool and a guide for tumor therapy.

Methods and Materials

During the years 1960 to 1965 inclusive the Section of Hematology at the University of Kansas Medical Center performed 3,175 bone marrow biopsies. All biopsies have been categorized by the section into various groups, one of which includes bone marrow biopsies performed on patients with a malignancy not involving the hematopoietic system. By making use of this group of biopsy material, leukemia and other hematopoietic malignancies were excluded by definition.

From the total 3,175 bone marrow biopsies in the six-year period listed above, 92 were so classified. These were performed on 73 patients at the medical center. The charts of these patients were reviewed with special attention to: (1) the reason the bone marrow biopsy was ordered, (2) the extent of knowledge concerning the patient's disease at that time, and (3) the results of the procedure both as to diagnosis and a guide for tumor therapy.

Results

The results of this survey are presented in the following tables.

TABLE 1

REASONS FOR ORDERING BONE MARROW BIOPSIES

Reason	*Number*
R/O metastatic invasion of bone marrow ...	37
Evaluate marrow reserve prior chemotherapy	18
Both r/o invasion and to evaluate reserve ..	8
Evaluate marrow reserve before continuation of chemotherapy	17
Diagnosis unknown	12
	92

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Melchior is now in service, stationed at Lackland Air Force Base, Texas.

TABLE 2

TABULATION OF DIAGNOSIS AND SPREAD KNOWN *BEFORE* BONE MARROW EXAMINATION

Disease	*Number of Cases*	*Tissue Diagnosis Prior to Bone Marrow:* MADE PRIOR THIS ADMISSION	MADE ON SAME ADMISSION	*Total With Diagnosis Known*	*Number Cases With Metastases:* TO BONE	TOTAL	*Total Number Marrow Exams*
Carcinoma of breast	16	15	1	16	11	14	18
Carcinoma of lung	7	2	3	5	1	4	8
Carcinoma of bowel	5	3	1	4	0	4	7
Carcinoma of stomach	3	1	0	1	0	1	5
Carcinoma of adrenal	2	1	0	1	0	1	3
Carcinoma of kidney	2	1	1	2	1	2	2
Carcinoma of cervix	2	2	0	2	1	1	2
Carcinoma of testicle	2	1	1	2	0	1	2
Carcinoma, primary undetermined	7	4	3	7	2	7	8
Lymphoma	5	2	1	3	0	5	8
Malignant melanoma	6	4	2	6	0	4	7
Sarcomas	4	2	2	4	1	2	7
Multiple myeloma	2	0	0	0	0	0	5
Miscellaneous malignancies	10	3	4	7	0	2	12
Totals	73	41	19	61	17	46	92

The 73 patients included in this survey exhibited a wide range of tumors. *Table 2* lists the various malignancies and the number with tissue diagnosis at the time of ordering the bone marrow biopsy. Furthermore, this table attempts to give some idea of the spread of the malignancy at the time the procedure was ordered by listing the number of cases with known metastases, as well as the number of cases with roentgenographic evidence of bone invasion.

In the previous two tables the number of bone marrow biopsies and the reason for their request is given. *Table 3* lists, in a general manner, the results of the 92 bone marrow biopsies:

TABLE 3

RESULTS OF BONE MARROW EXAMINATION PERFORMED ON THIS SELECTED GROUP OF PATIENTS

Normal	23	Recent toxic rxn.	2
Hypocellular	23	Aplastic marrow	2
Reactive marrow	28	No marrow obtained	2
Abnormal but not diagnostic	4	Multiple myeloma	5
		Malignant cells	4

Discussion

From *Table 1* and *Table 2* it will be noticed that 61 of 73 patients (83.5%) already had a tissue diagnosis of the malignancy and in most cases the site the primary was known. It was also noted that 59 per cent of the bone marrow biopsies were ordered in association with tumor chemotherapy. These two facts are kept in perspective if one recalls the years covered by this survey were also those years which saw the establishment and widespread use of many cancer chemotherapy agents. Since KUMC was one of this area's pioneer hospitals in the use of these antitumor agents, one would expect to see many referred patients who already have the primary diagnosis established. A few statistics on the 16 patients with carcinoma of the breast may further illustrate the type of referrals *(Table 4)*.

Winthrop states that carcinomas which are most likely to metastasize to bone are those with primaries in breast, lung, prostate, kidney and colon. To these Copeland and Geschickter add tumors with the primary in thyroid, female genital organs, and malignant melanomas.

In this series of 92 marrow examinations only four (4.3%) showed tumor cells in a syncytium or clump, thereby making the diagnosis of metastatic spread definite. Three of these were patients with carcinoma

TABLE 4

INFORMATION ON SPREAD AND TREATMENT OF CARCINOMA OF THE BREAST *PRIOR* TO BONE MARROW EXAMINATION

Number with tissue diagnosis	16	(100%)
Average time from tissue diagnosis till KUMC admission	5.9	years
Number with known metastases	14	(87.5%)
Number with prior radiation therapy	15	(94%)
Number with prior radical mastectomies	14	(87.5%)
Number with further surgical intervention, oophorectomy etc.	5	(31.2%)
Number given prior tumor chemotherapy	5	(31.2%)

of the breast. All three cases had roentgenographic evidence of two or more bony metastases. It should be noted that in eight other patients with the same diagnosis, also having roentgenographic evidence of bony metastases, no tumor cells were demonstrated in the bone marrow examination.

The fourth case in which tumor cells were found in the bone marrow examination was a patient with malignant melanoma. This patient showed no roentgenographic evidence of bony metastases. *Table 2* shows that of the 73 cases, 17 (23.3%) demonstrated roentgenographic evidence of bony metastases but such positive results were confirmed by the bone marrow examination in only three instances.

A review of the literature revealed no duplicate study of this type. Numerous articles deal with bone marrow examination for metastatic tumor, but they are done on either "selected patients" (as in Jonsson and Rundles who report 71 of 151 bone marrows positive for tumor cells) or on patients with "obscure malignant condition" (as in Hosley, Scharfman and Proppi who report 45 of 2,500 bone marrows positive for tumor cells). Rubinstein and Smelen have made a review of the German literature and reported this same problem when attempting to compare data and results. To illustrate this they point out that the percentage of bone marrows showing malignant cells for Walter was 6 per cent, Kregher and Poppe had 8 per cent, Selberg reported 10 per cent, while Franke claims 50 per cent. There is a general agreement that the discovery of bony metastases is a poor prognostic sign. This is especially true of carcinoma of the prostate which is often occult and without clinical significance. Once bony metastases are demonstrated there is a sharp decrease in survival rate.

It has been suggested that an effective way to increase the yield of positive bone marrow biopsies in cases of known metastatic disease, is to be more selective in the biopsy site, eg, select those sites where tumor presence is suggested by nodules, roentgen abnormalities or pain.

In the last few years the literature has carried several articles concerning the detection of metastatic carcinoma to bone by scintiscanning with radioisotopes. Strontium seems to be the most desirable because of its shorter half life. These reports give much promise as to the usefulness of this method in detecting bony metastases in their earliest stages, even before they are seen on x-ray. While this is quite helpful it should be noted that such information would be of no histologic value. It could not establish the primary lesion nor could it locate metastases as to cortex or marrow.

One would be hard-pressed from this data to defend the bone marrow examination if the percentage positive for tumor cells were the sole criterion of worth, but such is not the case. There are other considerations which more than justify its use—if indeed such needs any justification. Information was obtained from these procedures which could come from no other source. This is summed up in *Table 5*.

TABLE 5

EFFECT OF INFORMATION FROM MARROW BIOPSIES ON THIS SELECTED GROUP OF PATIENTS

Contribution	*Frequency*
Made definitive diagnosis	2
Prevented start of tumor chemotherapy	1
Prevented continuance of tumor chemotherapy	5
Allowed continuance of tumor chemotherapy	15
Showed definite evidence of malignant cells	4
	27

From this information and that previously given one can see that 27 of 92 examinations (29.4%) yielded valuable information. This does not include the information derived from an evaluation of marrow reserve which is normal. That such information is not easy to categorize in no way decreases its value and effect on therapy. As shown in *Table 5*, one of the bone marrow examinations done "merely" as a baseline prior to tumor chemotherapy revealed hypocellular marrow and prevented the initiation of such therapy. Even the most biased would agree this to be a significant contribution.

The laboratory data of all the patients were reviewed but no significant constant pattern was noted. These data reflected the problems caused by tumor chemotherapy (leukopenia, thrombocytopenia, etc.) and the complications from the primary tumor (eg, abdominal metastases of lymphoma resulting in compression of the ureter and uremia). Leukoerythroblastosis or myelophthisic anemia was considered in all six patients showing nucleated red blood cells on peripheral smear. None of these patients fulfilled the criteria for this diagnosis as given by Winthrop.

Throughout the review of charts, the author became increasingly impressed at the number of patients with A-positive blood and wondered if perhaps some relationship existed between A-positive blood and tumors of non-hematopoietic origin. Of the 73 cases, only 39 (53.4%) were typed with the following results.

TABLE 6

AVAILABLE BLOOD TYPES FROM THIS SELECTED GROUP OF PATIENTS WITH PER CENT EXPECTED IN NORMAL DISTRIBUTION

Type	*Number of Patients*	*Per Cent*	*Per Cent Expected Statistically*
A+	20	51	35
O+	13	33	38
B+	5	13	8
O–	1	3	7

Articles have appeared in the literature attempting to show correlation between various blood groups and certain tumors. After reading other authors, especially works by A. S. Wiener, the author concluded the increase in A-positive blood was merely a reflection of the smallness of the sample group since it was statistically significant to only 0.07.

Conclusions

1. In this research with the defined group, bone marrow examinations were largely ordered to investigate metastases and in relation to tumor chemotherapy, not primarily as a diagnostic tool. This is due mainly to the referral type of patient which was the majority of this group.

2. The presence of tumor metastases to bone seen on roentgenographic examination will not guarantee the same on a bone marrow examination.

3. It is extremely difficult—if not impossible—to compare the per cent of bone marrows positive for tumor cells as reported by various authors since all use "selected" populations. This amount of "selection" varies, depending on the method of exam, the site of biopsy, etc.

4. In only 4.3 per cent of the bone marrow examinations were tumor cells demonstrated, but the "overall per cent" which affected the diagnosis and selection/evaluation of chemotherapy was 29.4 per cent.

Summary

The charts of 73 patients from the University of Kansas Medical Center, who were classified as having malignancies not involving the hematopoietic system, were reviewed. All had undergone one or more bone marrow examinations in the period 1960 to 1965 inclusive. The purpose of review was to determine the effect of this procedure on the diagnosis and selection or evaluation of tumor chemotherapy.

An unexpected low yield of bone marrows, only 4.3 per cent, were positive for tumor cells although 23.3 per cent of the patients had roentgen evidence of marrow metastases. However, if the total knowledge gained by this procedure is considered, then this procedure has a 29.4 per cent yield of useful information.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

CP + T Newsletter

(Continued from page 260)

growing urgency for the practicing physician to be prepared to handle OP insecticide as well as other types of pesticide poisoning. A comparison of the fatality rate in poisoning cases treated in this country, 5 to 8 per cent, with that reported in some of the large European cities, 1 to 2 per cent, suggests that consideration should be given to the establishment of intoxication treatment centers in urban areas such as has been done in Copenhagen and Edinburgh.

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The public seldom forgive twice.—*Johann Kaspar Lavater*

Cancer Page

The tragedy of physician delay in diagnosis and treatment of cancer does occur. While no major breakthrough in the treatment of cancer has occurred, the oft-repeated terms "earlier diagnosis" and "earlier treatment" do offer considerable hope to many patients with cancer.

Much has been done to alert the public to the early signs of cancer; to seek early treatment; to have regular check-ups by their physician. The results of this effort have been good. The laity is properly aroused to and aware of this problem. Unfortunately our profession has not been quite so successful in alerting all of its members to constant diligence in cancer diagnosis and treatment.

Your Society's Committee for the Control of Cancer, a part of the commission on scientific study, will attempt to keep all of us reminded and refreshed regarding matters pertaining to cancer. A part of the activity of this committee will be this page, to appear regularly in the JOURNAL. Case reports, news briefs, announcements and editorial comment will appear here monthly.

We ask you to be a regular reader even if you feel you don't need any extra prodding on this subject.

—by Committee for Control of Cancer

The President's Message

DEAR DOCTOR:



As a new year of action begins for the Kansas Medical Society, we can look back with satisfaction on the many accomplishments of the past year under the inspiring leadership of George Gsell.

The splendid meeting at Topeka just finished evidenced careful planning by the Shawnee County Medical Society. On behalf of the State Society I extend our sincere thanks to our colleagues in Topeka for a job well done.

Viewing the year ahead I sense many specific problems which will require our time-consuming deliberations and I know that if we had the power to read the crystal ball of the future we would find some sobering unanticipated problems which will give us added concern.

I view this coming year with confidence—confidence built up over the years in observing how our organization works faithfully through its component societies, the House of Delegates, the Council and our Commissions to solve the issues which confront us.

Sincerely,

J. L. Morgan

President



Editorial COMMENT

Health Insurance—Health Care

The Health Insurance Institute recently sent the Society a statistical pamphlet listing some interesting figures on health insurance and health care. There is a page for each of the 50 states and the District of Columbia. In each instance the figures relating to health insurance apply to persons under age 65 only.

In Kansas 1,444,000 persons under age 65 had some form of hospital expense insurance as of December 31, 1966. Surgical expense insurance was carried by 1,341,000. Medical expense insurance was carried by 1,055,000 Kansans under the age of 65, and major medical expense insurance was carried by 393,000.

In Kansas, for persons under 65 years of age, $91,761,000 were paid in claims in 1965 by 285 insurance companies. Commercial insurance companies paid $48,436,000 and Blue Cross-Blue Shield paid $43,325,000 in 1965.

Again, from this pamphlet, the state of Kansas had 146 hospitals with 10,668 beds in 1966. In that year, 346,660 patients were admitted. The average hospital census was 7,816 per day. The average length of stay was 8.2 days and the average cost per hospital stay in this state was $309.63.

Comparing a few of these statistics with other states produces some interesting information. Thirty-seven states had a lower average length of hospital stay than Kansas; one was the same and in 12 states the average hospital stay was longer. The average cost per hospital stay found Kansas more nearly the center. In 30 states the average cost per hospital stay was greater than in Kansas; in 20 states the cost was less.

It appears from this pamphlet that the average length of stay (5.3 days) and the average cost per stay ($207) was lowest in the state of Arkansas. The highest is New York where the average length of stay is 10.1 days and the average cost per hospital stay is $582.

Other figures of some interest are the comparative payments made by commercial insurance companies and Blue Cross-Blue Shield. In Kansas the two are quite close—$48,000,000 being paid by commercial insurance and $43,000,000 by Blue Cross-Blue Shield in 1965. Commercial insurance paid considerably more than Blue Cross-Blue Shield in the majority of states. In Alaska, for example, the ratio was about five to one. In a very few, such as Washington, D. C., Hawaii, Maryland, Massachusetts, Michigan and New York, Blue Cross-Blue Shield paid more in claims than was paid by commercial insurance. The highest difference appears to be in Hawaii where Blue Cross-Blue Shield paid at a ratio of more than four to one.

SUPPORT KaMPAC

1968



Personalities—IN KANSAS MEDICINE

Melvin L. Masterson has completed his residency in radiology at KUMC and is now associated with **Leland F. Glaser,** radiologist for Grace and St. Elizabeth hospitals in Hutchinson. Before going into residency, Dr. Masterson was in general practice at Paola.

Larry Hart and **John T. Growney** of Atchison; **David A. Leitch,** Garnett; and **Bert Chronister,** Neodesha have been elected to active membership in the American Academy of General Practice.

L. G. Graves, St. John, attended the Southern Clinical medical meeting in Dallas in March.

The 1968 Crumbine award was presented to **Leon Bauman,** director of the Wichita-Sedgwick County Community Health Department at the annual Crumbine banquet held in Topeka in April. The award is given annually for outstanding service to public health.

William H. Crouch, Topeka, has been selected by the American Academy of Pediatrics as one of the physicians who will evaluate the medical aspects of Head Start programs in nearly 2,000 communities throughout the United States.

F. P. Wolff, Pratt, has accepted an appointment by Governor Docking to serve as a member of the health advisory committee of the State Board of Social Welfare.

Kellogg F. Bascom, Manhattan, was the recipient of the Service to Mankind Award, which is presented annually by the Manhattan Sertoma Club to a citizen of the community for outstanding services.

Donald Decker, Halstead, was inducted as a fellow in the American College of Cardiology during ceremonies at the annual meeting of the College held in San Francisco in March.

The president-elect of the Kansas Public Health Association, **Carl O. Tompkins** of Newton, attended a planning meeting at the American Public Health Association headquarters in New York City in March.

Bernard H. Hall, Topeka, has been named director of clinical services of the Menninger Foundation.

Ralph E. Bula, Hays, attended the 24th annual congress of the American College of Allergists, held in Denver recently.

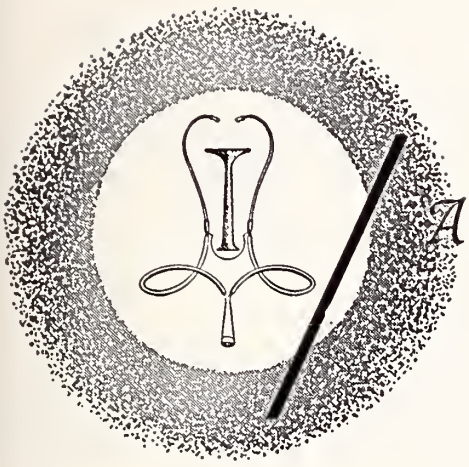
In April, the Wellington Chamber of Commerce presented its Distinguished Service Award to **Ward M. Cole.**

Lucian L. Leape, pediatric surgeon and assistant professor at KUMC, has been named a Markle Scholar in medical sciences. Dr. Leape, whose laboratory research interests focus on the physiology of burns, will receive a grant over a five-year period to support him in his research and teaching programs.

The Seward County Board of Commissioners has appointed **Charlotte L. Seago,** Liberal, as county health officer.

William Nice, Topeka, participated in the 40th annual Mid-West Hospital Association convention held in Kansas City in March. Dr. Nice spoke on drugs used in inhalation therapy at a seminar for inhalation therapists.

Robert Friggeri, Pittsburg, attended a postgraduate course in coronary diseases at the University of Missouri in Columbia in March.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

MAY

May 16 — 19th annual Dr. F. G. Thompson, Sr., Lectureship, Thompson, Brumm & Knepper Clinic, 902 Edmond, St. Joseph, Missouri. The lecture will be given at 8:15 p.m. by R. Drew Miller, M.D., Mayo Graduate School of Medicine.

May 16-18 — Southwest Allergy Forum, Lassen Hotel, Wichita. For information call C. C. Drevets, M.D., Wichita Clinic, MU 3-8551.

May 19-20 — Symposium on Dextrans, *Current Concepts of the Basic Actions of Dextrans and Their Clinical Application in Cardiovascular and Related Fields,* Flagship Hotel, Galveston Island, Texas. Write: Texas Heart Association, P.O. Box 25041, Houston 77005.

JUNE

June 13-17 — American College of Chest Physicians, Hilton Hotel, San Francisco. Write Murray Kornfeld, Exec. Director, 112 E. Chestnut, Chicago 60611.

June 15 — Congress on Medicine and Insurance, co-sponsored by the Association of Life Insurance Medical Directors of America and the American Medical Association, Fairmont Hotel, San Francisco. Activities will include two symposiums, a luncheon program, and keynote address by M. O. Rouse, M.D., president of AMA.

June 16-17 — American College of Legal Medicine, Hilton Hotel, San Francisco, Write Miss Betty Hanna, Exec. Secretary, 60 E. Scott St., Suite 402, Chicago 60610.

June 16-20 — American Medical Association annual meeting, Fairmont Hotel, San Francisco. Write F. J. L. Blasingame, M.D., Exec. Vice President, 535 N. Dearborn, Chicago 60610.

June 21-22 — American Medical Writers Association, University of California San Francisco Medical Center. Fee $50. Write M. Coleman Harris, M.D., 450 Sutter Street, San Francisco.

June 26-28 — Children's Hospital, Denver, will hold the annual Summer Clinics at Vail. Fee $40; registration limited. Write Dept. of Continuing Education, Children's Hospital, 19th Ave. at Downing, Denver 80218.

POSTGRADUATE COURSES

University of Colorado:

June 17-19 — *Intensive Care Units (American College of Physicians)*

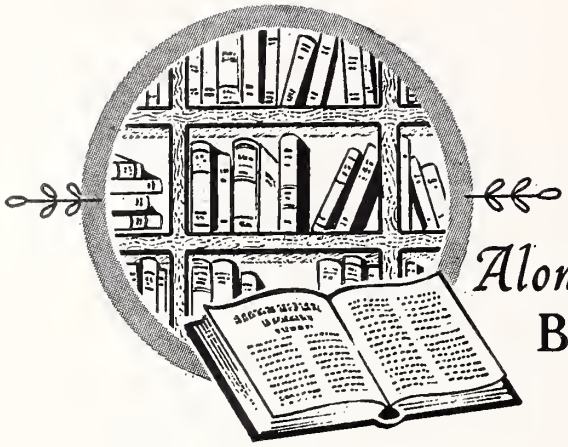
June 17-20 — *Obstetrics and Gynecology (Estes Park)*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver 80220.

University of Nebraska:

May 24-25 — *Surgery and 13th Annual Trauma Day*

For further information write the Department for Continuing Education, University of Nebraska College of Medicine, Omaha.



Along The BOOKSHELF

Clendening Medical Library

RECENT REQUISITIONS

Antibiotics, v.1. Springer-Verlag, 1967.

Chou, Te-chuan. Clinical vectorcardiography. Grune & Stratton, 1967.

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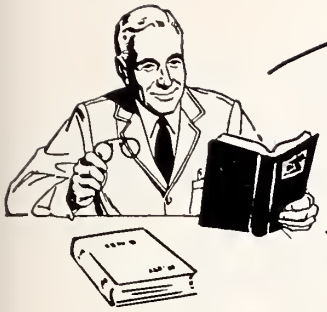
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Rutstein, David D. Coming revolution in medicine. M.I.T. Press, 1967.

Taran, Leo M. Collected works on rheumatic fever. International Prof. Publications, 1967.

Teplick, J. Roentgenologic diagnosis. Saunders, 1967.



Book REVIEWS

INFANT NUTRITION, by Samuel J. Fomon, M.D. W. B. Saunders Company, Philadelphia, 1967. 299 pages.

This very readable book recalls the history of pediatric feeding from 1880 to the present time, with a final bow to its possible future. Logically enough, the bulk of the chapters deal with what is sound in present nutritional practices as to: normal growth (urinary excretion of hydroxyproline, the amino acid of collagen, is mentioned as one chemical index of growth); nutrient requirements and usual intakes; proteins; fats, fatty acids and polyunsaturates; carbohydrates; vitamins; major minerals; and trace micronutrients.

The author covers thoroughly the milk-based formulas and also the non-milk-based formulas, together with allergies of infants. Content and indications for prescribing each type of formula are given.

This volume has many tables of practical use. One of the many useful tables lists gluten-free foods. Another four-page table charts hereditary metabolic diseases.

The section on water requirements of infants up to one year of age (p. 149) seems vague. It refers to a wrong table and does not seem to express well what the author probably meant. Renal solute load covered in the same chapter has valuable information.

The final chapter makes interesting reading regarding longevity, brain development, and the new and fascinating subject of nutritional imprinting.

This book would be a good purchase for medical and nursing libraries and a handy reference for the pediatrician's or family physician's bookshelf. It also would be a good springboard to a speech to laymen, since this volume is well-organized as to facts and structure and would have many points of audience interest.—*C.M.E.*

THE HUMAN HEART: The Layman's Guide to Heart Disease, by Brendan Phibbs. The C. V. Mosby Company, St. Louis, 1967. 235 pages illustrated.

Dr. Brendan Phibbs of the Cardiovascular Research Unit, Natrona County Memorial Hospital, Casper, Wyoming, has enlisted contributions from Drs. Lane Craddock, George Griffith, Robert T. Patrick and Colin H. M. Walker in writing this layman's guide to heart disease. The basic anatomy and physiology is satisfactorily covered, in addition to the common disorders of the heart with their associated problems. The illustrations are lucid, as are the explanations. Nonetheless, a competence in vocabulary and reading beyond that of reading a newspaper is required. Consequently, only the more enlightened public will find this valuable, particularly those working in areas of medicine where esoteric procedures are not commonplace. The cardiac catheterization procedure is particularly well described from the patient's standpoint. Internists, cardiovascular surgeons and many generalists may want to buy a volume or two for the purpose of loaning them to selected patients. Physicians of the types designated above may profit by a review of this paperbound, well-indexed, readable, 253-page volume that possesses a nominal cost of $4.95.—*N.V.T.*

VASCULAR COMPLICATIONS OF DIABETES MELLITUS, by Samuel J. Kimura and Wayne M. Caygill. C. V. Mosby Company, St. Louis, 1967. 277 pages illustrated.

This book, condensed from a California symposium, features the thoughts of a group of ophthalmologists, researchers and investigators on a poorly understood subject, "diabetic retinopathy." But, if you dig into it, you find it contains many fascinating studies.

I found the chapter on the natural course of diabetic retinopathy by M. B. Davis, M.D., to be fascinating. He demonstrates diabetic retinopathy developing "right under one's eyes." I recommend this chapter as well worth your reading time.

Also, the results of therapy by pituitary cryo surgery on 16 patients is described. This method of treatment will be studied more in the future.

For those interested in the problems of diabetic retinopathy, this book will be interesting reading.—*J.E.C.*

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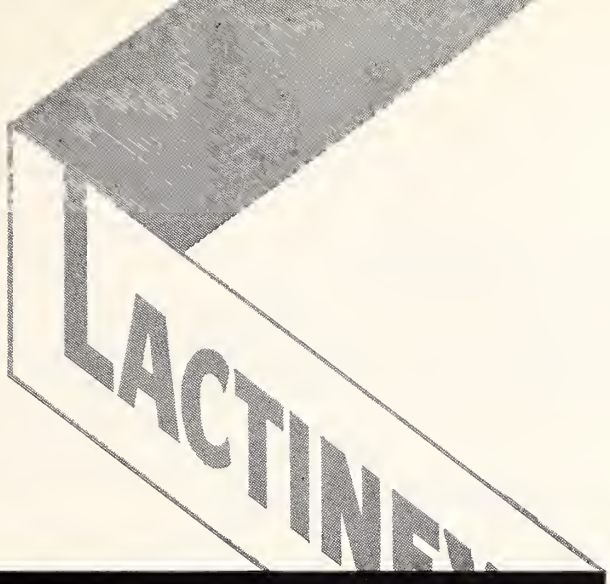
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(1) Siver, R. H.: CMD, *21*:109, September 1954. (2) Frykman, H. H.: Minn. Med., *38*:19-27, January 1955. (3) McGivney, J.: Tex. State Jour. Med., *51*:16-18, January 1955. (4) Quehl, T. M.: Jour. of Florida Acad. Gen. Prac., *15*:15-16, October 1965. (5) Weekes, D. J.: N.Y. State Jour. Med., *58*:2672-2673, August 1958. (6) Weekes, D. J.: EENT Digest, *25*:47-59, December 1963. (7) Abbott, P. L.: Jour. Oral Surg., Anes., & Hosp. Dental Serv., 310-312, July 1961. (8) Rapoport, L. and Levine, W. I.: Oral Surg., Oral Med. & Oral Path., *20*:591-593, November 1965.

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Volume LXIX, Number 6—June, 1968

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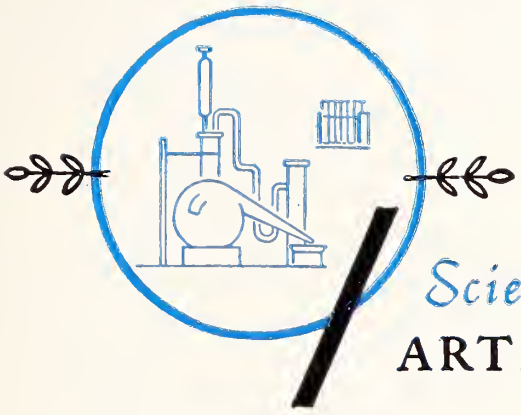
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Scientific
ARTICLES

Treat the Total Patient

Developmental Deviations in Pediatrics

JOSEPH P. ROSSI, M.D.,* ***Denver***

OF ALL THE KEY PROBLEMS in pediatric practice, or in any practice dealing in great part with children, the most frequent questions mentioned are those revolving around developmental issues, e.g. when does a developmental variation become a deviation, when is chronic school failure due to mental retardation or pseudoretardation, when is hyperkinetic behavior "organic" and when is it part of an emotional disorder, etc. . . . ? Probably no individual is more perplexing to the practitioner, at times, than the growing child in trouble for he has developmental phases and what is normal in one phase may be distinctly pathological in the next or more advanced phase. The growing child is not complete, he is dynamic, shifting and changing; he is totally functional. Therefore a completely disease-oriented approach will do little to unravel the multitude of factors that may cause him to stray from developmental norms. What has to be known or inquired about besides the physical and neurological status of the child is the family, the school, the community, and friends.

If this asks of the physician to assume the role of a behavioral or social scientist, at this point, so much the better for one can never know the total child until he accrues all the data available to him that we know or suspect contribute to the early patterns of human development. A look at the developmental process and its role in promoting development seems to be in order.

The Developmental Process

The developmental process acts as a thermostat to stimulate, regulate, and generate development in the human organism. This process is not a "thing" nor is it an anatomic entity for which we can search in the brain. It is merely a concept, for which I feel there is a great need, to describe what we see happen to children every day, the marvelous unfolding in sequential time patterns of acquisitions of higher and more complex function. That this cannot and does not spontaneously happen by chance is obvious (for these patterns are replicable to some degree in all normal children) and there must exist a higher order, which we call the developmental process to insure ongoing developmental sequences. There is much feedback into this system that modifies and regulates it and puts it into "tune" with the whole organism; it does not therefore exist in a vacuum so that development does not manifest itself in an "all or

Of all the key issues in pediatric practice the most frequent problems are those revolving around developmental issues. . . .

* Presented at the October, 1967, meeting of the Shawnee County Medical Society. Dr. Rossi is director of the John F. Kennedy Child Development Center, University of Colorado Medical Center.

none" proposition but rather as a spectrum or a continuum of expression.

Any definition of the developmental process, as it applies to the human organism, implies a regulation and control of intrinsic biologic forces in a temporal sequence which ultimately leads to acquisition of a higher function. In this definition we therefore bring into focus and relate development to a timing mechanism which seems to exert a good deal of control over many physiologic processes. We speak of circadian systems, diurnal variations and many other "body clocks" in the repertoire of human physiology; therefore we live in a temporal orientation not only in a functional "24 hour-a-day" sense, but also biologically.

In the prenatal environment the developmental process starts literally at the time of conception and these time-oriented developmental sequences generate rapid cell division of the fertilized ovum. Any disturbance in the internal milieu during the prenatal period, be it genetically induced (phenylketonuria), toxic or nutritive, has the potential to disrupt normal developmental sequences and therefore result in a defective child.

How does the developmental process work? Let us go back to the prenatal environment once again, literally to the cradle of development. In the developing fetus enzymes phase in and out, presumably through operator and regulator gene control, and work actively only for a critical time span.[1] This mechanism feeds back to activate other genes which then turn on another set of enzymatic reactions, the end result being greater differentiation and acquisition of higher function. The feedback principle is vitally important, is replicated throughout human development, and is vitally influential in the development of the perceptual senses and abstract learning skills. This is the model, or perhaps the template, upon which much of mammalian neurologic development depends. This conceptual framework easily takes us a step further now to talk of "critical timing" or "critical sequences" in human development for the optimal acquisition of sensori-motor experiences necessary to the development of learning skills.[2] When these "critical periods" are not met properly due to environmental factors, so that a temporal delay occurs, a developmental deviation may occur in the child. The Head Start youngster is one for whom we hope there is reversibility or "catch-up" in the "critical sequences" and that the debt can be paid to the central nervous system at a later date and not result in forfeiture, due to the delay, of the child's reaching his potential endowment.

These "critical periods" are essentially optimal periods when the biochemical, neurophysiological, and experiential factors all combine to make ready, upon feedback stimulation, for a higher level of function. Toxic factors, cranial trauma, emotional deprivation, and central nervous system infection, any of these may work singly or together to defer acquisition of optimal development by interfering with the "critical periods."

That "critical periods" occur at all is attested to by growth spurts in learning seen in all preschool and elementary school youngsters. It is a massive, frequently quite sudden, development of function or knowledge that previously seemed unattainable. This is frequently followed by a tapering or plateau effect, which perhaps reflects a need to integrate and consolidate the newly acquired skills, only to be followed in a few short months by another rapid "growth spurt." That the new data is properly utilized and integrated would be dependent upon the maturational status of the nervous system and the functioning schemata already laid down. In other words, what has gone before in great part determines the interpretation of current data and its integration into the nervous system.

Timing in a critical sense and availability of knowledge and of experience never again combine so delicately as in early childhood to delineate the pattern of man's intellectual organization. The magnitude of this can be grasped by current educational research which suggests that basic raw learning skills or coding is almost complete by nine to ten years.[3, 4] Thereafter learning is a continual, but mainly associational process. Viewed from such a perspective and in a developmental focus, the first three years of an infant's life may truly predict the man!

Clinical Use of the Developmental Process

Clinical use of the concept of a developmental process then demands looking at the child from a slightly different perspective. This approach puts aside the shibboleths of organic versus functional, or hereditary versus environmental. Rather, it seeks an approach that correlates all factors—environmental, constitutional, metabolic—with the child's level of function in order to find diagnostic clues that suggest remedial approaches. We here are treatment oriented rather than purely diagnostically oriented. A specific diagnosis may only evolve in time after a certain treatment program has revealed new behavioral clues.

The therapy applied to the child manifesting developmental failure may be any combinations of the following: special education, nursery school, parent counseling, milieu therapy, or environmental manipulation, psychotherapy, occupational therapy, physical therapy, language and speech training, hearing aid orientation, etc. As an example of the variety of treatment approaches some case histories will be used

as examples. The first case is one where environmental manipulation plus parent counseling were used.

Case I (Kimberly)

This little girl was first seen at the John F. Kennedy Child Development Center at the age of 13 months. She was slow primarily in language and gross motor development. At 13 months she was just barely sitting, was not creeping, nor was she able to pull to stand. Her language consisted of single syllables and the word "mama" was used twice in the past and then never again (clue number 1). Physical and neurological examinations were unrevealing. Developmental level was assessed at around six to seven months or about 50 per cent of her chronologic age. Two previous diagnoses of mental retardation had been made and the parents, especially the mother, had accepted this calmly. Despite this Kim seemed very alert and was exceedingly manipulative of people in her environment (clue number 2). The mother, when asked if we could present Kim to a conference of professionals, gave her permission eagerly, shoved Kim in my arms, and asked "You don't need me, do you?" (clue number 3). By her actions during this first clinic visit the mother, though seemingly calm, gave evidence of having given up on Kim and was eager to give responsibility to professionals for her care.

The prenatal history was significant in that when three months' pregnant she had a severe epistaxis requiring blood transfusions and was told that in all likelihood the infant would be stillborn (clue number 4). When Kim was born alive and survived the neonatal period in robust fashion her mother "went through the paces" and expected "the bubble would burst soon"! When towards the end of the first year Kim appeared retarded she accepted this calmly, "my worst fears having been realized"!

Because at this point the diagnostic clues all pointed towards one direction, I assigned one of our pediatric fellows to work with both parents, but mainly the mother. A gimicky approach was used to get the mother physically closer to her child; she was given a prescribed list of leg exercises to do whenever she changed diapers. The ostensible reason given for this was to strengthen her legs which would lead to walking. Also during these conferences the mother was encouraged to talk about her pregnancy and how she felt when told her baby would be stillborn ("I felt dead inside"). Finally the total picture added up clearly to a child failing developmentally due to emotional deprivation because her mother began grieving and mourning for her "dead" child and had worked this through before delivery. Kim was destined, by virtue of circumstances, to be an extremely vulnerable child! When Kim was born alive her mother had little affection to give and by her own statement, "went through the paces," suggesting that for Kim, at least, her mother was present only physically. It was obvious that if our speculation was correct, Kim would literally have to be reborn once again in her mother's eyes—to present her whole, intact and alive, in order to set this mother-child relationship back on a normal course. For this reason exercises demanding body contact were chosen and it was hoped that if quick improvement followed the mother's affect would become reality-oriented toward the child. At the same time the pediatrician concentrated on reaffirming Kim's "intactness" and that true mental retardation was not present. Within three months Kim developed six months in motor development and language also improved, though more slowly. This accelerated pattern suggests that the original tentative diagnosis was correct. Today Kim is developing normally, except for language which is still slightly behind, but despite much counseling it may be many more years before Kim's mother will accept her as a nondefective child.

Case II (Jeffrey)

In this case therapy consisted of neurosurgery, speech therapy, environmental manipulation, and marital counseling. Jeff was first seen at our Center at 3½ years of age. Essentially his landmarks of development were all normal except for the fact that he had no speech beyond a few isolated words and was subject to temper tantrums. On physical examination he showed oxycephaly and x-ray of the skull showed premature closure of the sutures. A neurosurgical procedure was done for cosmetic effect mainly and then the remainder of the diagnostic evaluation followed. Despite his rather quick improvement cosmetically, Jeff continued to lag behind in speech and had few friends available in his neighborhood. He was also enuretic nightly and was described as a finicky eater which worried his mother greatly. Despite his lack of motor speech Jeff comprehended well and was particularly adept with mechanical tools. His coordination was excellent and his neurologic examination was negative. On several occasions, when pressured by the children, Mrs. S. would prepare three different suppers, one for Jeff, one for Lisa, the five-year-old sibling, and one for herself and her husband. When asked why she did this she replied, "I guess I find it easier to give in to the children than to be firm and have an argument" (clue number 1). At the same time she was still bathing Jeff and Lisa and doing many things for them that they could well do for themselves.

Mr. S. is a tall, handsome man who worked at his job in the daytime and kept an independent

business of his own going at night. Moonlighting was constant, the pressure was intense, and he rarely talked about Jeff or gave him much time (clue number 2). He was much too involved with upstriving and material success to prove himself to even consider the needs of his family. In other respects his two business lives were his escape from a marriage which appeared balanced on a shaky footing.

Jeff was tested psychologically and on the WISC, despite a very poor verbal score, achieved an IQ in the low eighties. It was felt his potential was better than he showed at the time. The diagnostic formulation was developmental deviation in the area of language secondary to some degree of infantilization, improper setting of limits, and a generally absent father. Possibly the craniostenosis contributed to the total problem, but it was never complete and there was never increased intracranial pressure.

Many counseling sessions were held with the parents and setting of limits was stressed with both parents firmly supporting each other. The father was advised to have a thorough physical examination and slow up his pace. This he did and over several months decided to give up one job. He spent more time with Jeff on weekends and appeared to enjoy his new-found role of father. Interestingly, despite his high intelligence level, he had no intuitive insight into any of his problems regarding his previously non-existent relationship to his son.

Mrs. S. decided then on a summer vacation with her children at her parents' country home out of state. Mr. S. continued working and could not see his way free to go with his family (clue number 3). Jeff developed a deep relationship with his maternal grandfather who would brook no tantrums or babyish behavior but who took him fishing frequently and spent many hours with him explaining facets of nature during their walks together. At the end of four weeks Jeff began talking profusely and in sentences (clue number 4). Mrs. S. on coming home from vacation called me excitedly and related the happy news.

At our next conference she reaffirmed Jeff's speech improvement and how it seemed to relate to the relationship he had formed with his maternal grandfather. Whereupon Mr. S. angrily shouted, "Go ahead say it, say it again, but no matter how often you say it, I can never be like your father, and furthermore, I don't want to be!" Finally I had my final clue (number 5) to fill in the jig-saw pieces of my diagnostic puzzle. At this point in time one year had elasped from the original time of consultation.

Finally what had become apparent was that Mrs. S. had an overly-strong attachment to her father who was a "pillar of strength" and an equally weak one with her mother. She hoped for a similar dominant "father" in her husband and the more helpless, confused, and manipulated she became in relation to her children, the more her husband refused to play the role of her father, and the more he retreated into moonlighting. Though never stated explicitly, I suspect there were sexual problems also in this marriage.

Jeff meanwhile has held onto his new speech and language gains and the parents have profited from marital counseling. Jeff is now in a preschool and doing well. The fear of retardation has been lifted from the parents' minds and they now realize that Jeff's problem was only one symptom of a chronic marital conflict which resulted in utter chaos in the rearing and handling of their children.

The Milieu, the Child, and the Scope of the Problem

I think these two cases are illustrative of how intrinsically woven a child's early development is with the type, character, and composition of his family and what is going on in that family at any given time. Whenever a child is chronically ill, retarded or handicapped, in some way the whole family must cope or adapt[5] and conversely whenever a marriage is "sick" or shaky, the role of the parents is easily undermined with the children because personal needs easily get in the way of adequate mothering and fathering. Any developmental approach therefore must assess the function of the child in his natural setting, the family, and no developmental evaluation is complete unless the family is also evaluated.

To be able to assess when a developmental variant becomes a deviation is difficult, and at times almost impossible. Perhaps a limiting factor is the nature of the child's family, e.g., their coping style and ability. If it is nil or inadequate, professional consultation is sought. An example would be the child who is developmentally hyperactive[6] but not organically brain damaged. Conflict would only arise if the child was hyperactive beyond the parental tolerance level and this is a purely subjective measurement and would vary greatly between different parents. For these reasons "deviations" have a different flavor depending in great part upon parental resiliency and adaptability. What is quasi-pathological in one family may border on normalcy in another.

Granting, therefore, that the degree of parental expression frequently determines the "vector," or direction and magnitude of the child's symptoms, it is still possible to secure diagnostic clues, as illustrated above, that suggest inborn deviancy in the

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Diazepam in Cardioversion

The Use of Diazepam as Pre-Medication for Cardioversion

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CARDIOVERSION OF CARDIAC ARRHYTHMIAS has been used with increasing frequency since its introduction by Lown in 1962.[1] In preparation for elective cardioversion, most of the patients have had general anesthesia, usually induced by a short-acting barbiturate. This procedure requires an anesthesiologist and usually necessitates taking the patient to the operating suite. Until February of 1967 this had been the routine at the University of Kansas Medical Center.[2] However, there have been four recent reports involving a total of 76 patients which indicated that intravenous diazepam may be a useful alternative to the use of barbiturates.[3–6] Our experience in the use of diazepam is the subject of this report.

Methods and Results

Twenty-six elective cardioversions were done between February and November of 1967, using intravenous diazepam in each case. Nine patients had had cardioversion done at least once previously using sodium thiopental. The patients ranged in age from 16 to 67 years old. There were 12 males and 14 females. There were 21 cases of rheumatic heart disease. Of these, ten had undergone previous mitral valvulotomy and three had a Starr-Edwards prosthetic valve replacement. There were three cases of arteriosclerotic heart disease, one case of carcinoma of the lung, and one with paroxysmal atrial tachycardia without other demonstrable heart disease.

Preparation of the patient involved an overnight fast and withholding digitalis at least the morning of the procedure. Patients were started on quinidine sulfate, 200 mg every four to six hours and, in most cases, received a total dose of at least 400 mg prior to cardioversion. Pronestyl was used instead of quinidine in cases where the patients were known to be allergic to quinidine. The cardioversion was done either in the patient's room or in the "treatment room" on the ward. None of the patients were taken to the operating suite and none required an anesthesiologist.†

After the monitoring device was applied to the patient the initial dose of diazepam was given intravenously. This drug precipitates in dextrose or saline infusions and should be injected directly intravenously. The initial usual dose was 5 to 10 mg given over a three to five minute period, with the smaller dose being used in the older patients. In patients who did not achieve sufficient sedation with this dose, subsequent doses of 2.5 mg were given at three to five minute intervals. The patients were regarded as being sufficiently sedated for cardioversion when they seemed to be lightly asleep and were not aroused by speaking softly to the patient. To achieve this level the dose varied from 5 to 20 mg.

Intravenous diazepam was given as preparation for cardioversion in 26 patients with arrhythmias. All cardioversions were done on the ward and none required an anesthesiologist. Eighteen patients were completely amnesic for the procedure. Four patients recalled some of the procedure, but did not feel that it was an unpleasant experience. Three patients remembered the procedure and the precordial shock and they remembered it as unpleasant. No significant adverse reactions occurred. This drug seems to be a safe, convenient, and, for most patients, a satisfactory method for preparation for cardioversion.

* From the Cardiovascular Laboratory, University of Kansas Medical Center.

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† The equipment used was an Electrodyne DC Defibrillator and monitor.

The precordial shock was then delivered, usually starting with a dose of 100 to 200 watts second and increasing subsequent doses if these were required. Most patients groaned when the shock was delivered and a few complained immediately afterward about having felt the pain. Most patients drifted back into a light sleep within one minute and remained somnolent for one to two hours. When the patient was fully awake an evaluation was made to determine what the patient remembered about the procedure. Eighteen had total amnesia for the procedure after being given the diazepam. Four patients had some recall about the procedure, but did not recall it as being unpleasant. Three patients remembered the procedure and the shock and felt that it was unpleasant.

It has been our experience that intravenous diazepam is the preferable method for preparing patients for cardioversion. Of our 26 patients, only three remembered the procedure as being unpleasant. Two patients who had previous cardioversions using sodium thiopental stated that they found their cardioversions using diazepam a more pleasant experience. As our experience with this drug has accumulated, it is our feeling that all patients can be cardioverted without sensation if more careful attention is given to the level of sedation obtained before the shock is delivered. Most patients require from 7.5 to 12.5 mg. The lower dosage should be used for the elderly patients. Additional doses should be given only in 2.5 mg increments at three to five minute intervals. Using these doses, most of our patients remained in a somnolent but easily arousable state for one to two hours.

A slight and transient lowering of systolic blood pressure has been reported.[6] In a few of our cases a slight decrease in blood pressure was recorded, but in no case was the decrease of any significance. No significant respiratory depression was observed, although in most cases there was some slowing of the respiratory rate. Pain at the injection site during administration of diazepam as well as venous thrombosis and thrombophlebitis have been reported.[4] Unsteadiness of gait and drowsiness for 24 hours after receiving diazepam have also been reported.[6] None of these reactions occurred in our patients.

One report indicates that fewer premature ventricular contractions occur with the procedure when diazepam is used instead of thiopental.[5] It has been our impression that a variety of transient arrhythmias occur after the precordial shock in about 50 per cent of patients regardless of whether diazepam or thiopental is used for sedation.

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Treat the Total Patient

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child, or reactive elements to something in the milieu. The degree of amelioration by treatment can then be assessed or at least attempted and in addition what is not responsive to treatment and remains a continual problem or impairment should be evaluated. A recently published *Guide to the Evaluation of Permanent Impairment* may prove useful or at least serve as a prototype for future schedules that relate impairment values to mental deficiency, personality disorders, psychoses, and chronic brain syndromes.[7] Such initial ratings will help determine degree of improvement, if any, after a treatment program has been applied. A developmental approach, therefore, assesses function of the child in his natural setting, the family. It is well to remember that, when all is said and done, the type of milieu in which the child is reared will in the long run determine not the IQ level the child reaches but more importantly what he does with his intelligence and how he utilizes it, and this in turn will determine whether or not he fulfills his potential endowment.

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CP + T

Newsletter

Antidepressants

RECENTLY WE HAVE SEEN progress in drug therapy of depression. In the past, the only useful remedy was electroconvulsive therapy and this, of course, had the drawbacks of being unpleasant to patients, creating troublesome memory loss, and requiring hospitalization.

The drugs available for the treatment of depression can be conveniently divided into two general classes, the monoamine oxidase inhibitors and the tricyclic antidepressants. The accompanying tables list the compounds available. We will not discuss the amphetamines or chlordiazepoxide (Librium) which have some minor uses in depression.

There are now five monoamine oxidase inhibitors (MAOI) on the market *(Table 1)*. One of them, pargyline (Eutonyl), is marketed primarily for hypertension. Of the others, the most potent is tranylcypromine (Parnate) which is also the most effective of the group. These include, in decreasing potency, phenelzine (Nardil), isocarboxazid (Marplan) and nialamide (Niamid).

Many adverse effects can be seen with adequate therapy. They include postural hypotension with dizziness, weakness, fainting, nausea, and constipation. Skin rashes have been reported. Liver and blood toxic effects are rare. All MAOI may cause patients to react in unusual and, at times, in highly dangerous ways with many drugs and with certain food. It is wise to avoid any other medications. Alcohol, cocaine, barbiturates, ether, insulin, meperidine, opiates, procaine, all sympathomimetic amines and antihypertensive agents must be avoided. Foods such as ripe cheese, certain creams, beers, wines, and other foods containing tyramine or other pressor amines must be avoided. Should a severe hypertensive episode occur, the immediate injection of 5.0 mg of phentolamine (Regitine) is indicated.

The tricyclic antidepressants have afforded some of the most effective and least toxic drugs for the treatment of depression. Many compounds are now available *(Table 2)*, and they are usually divided into

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TABLE I

MONOAMINE OXIDASE INHIBITORS

Generic Name	*Trade Name*	*Dosage*
Isocarboxazid	Marplan	10 mg q.i.d.
Nialamide	Niamid	100 mg t.i.d.
Phenelzine sulfate ...	Nardil	15 mg t.i.d.
Tranylcypromine	Parnate	10 mg b.i.d.
Pargyline HCl	Eutonyl	25 mg t.i.d.

TABLE 2

TRICYCLIC ANTIDEPRESSANTS

Tertiary Amine	*Secondary Amine*
Imipramine (Tofranil)	Desipramine (Norpramin) (Pertofrane)
Amitriptyline (Elavil)	Nortriptyline (Aventyl)
Prothiadene	Protriptyline (Vivactil)
Doxepin	Northiadene
	Desmethyldoxepin

Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

Law-Medicine Comment

Definitions of Death

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WILLIAM F. HARVEY, J.D., LL.M.,* *Topeka*

The Kansas Supreme Court has defined death as the complete cessation of all vital functions without possibility of resuscitation. Implications of this inclusive concept are discussed in terms of representative medical and legal definitions.

RECENT DEVELOPMENTS in transplantation, supportive therapy, and resuscitation have reemphasized that individual tissues "die" at different times following the cessation of respiration and circulation, and manifest periods during which "death" is reversible. As a result, the inadequacy of present definitions of human death has become increasingly apparent, and an unambiguous moment of death may be difficult to establish in situations involving the donation of an organ for transplantation, the withdrawal of sustaining devices from an unconscious patient, or the initiation or termination of resuscitative measures. More significantly, analysis of legal and medical concepts of death has revealed actual and potential dissimilarities in corresponding definitions, creating the possibility that different moments of death might result in law and in medicine for the same individual or in similar circumstances. Interdisciplinary standardization of definitions therefore appears desirable, if future conflict is to be avoided.[1-5]

Medical Definitions

The literature reveals considerable disparity and lack of precision in medical concepts of death, reflected in definitions formulated by physicians in different areas of interest. Although the law necessarily considers death as an event occurring at a precise time, medicine recognizes death as a process, involving a transition from the living state to the state of being dead. The moment of death is thus an arbitrary point in this process, determined by professional judgment, based on established, historic, and possibly obsolete principles.

Ordinary medical definitions of death. The basic tetralogy, commonly employed by practicing physicians in pronouncing death, consists of (1) insensibility, meaning clinical absence of cerebral activity and reflexes; (2) cessation of respiration; (3) cessation of circulation, and (4) irreversibility. This well-known and clinically established definition, however, seldom appears clearly in medical writings, which frequently omit express reference to individual criteria or define death by truism or ambiguous terms. Closer scrutiny generally establishes that the omitted criteria are included by implication, as an essential part of the total clinical situation. By way of illustration, definitions appearing in medical dictionaries and in textbooks of pathology may be examined. The dictionaries define death as "the cessation of life beyond the possibility of resuscitation";[6] or "the apparent extinction of life, as evidenced by absence of heart beat and respiration";[7] or "permanent cessation of all vital functions."[8] The textbooks, on the other hand, define somatic death (death of the organism) in terms of respiration and cardiac action, without express reference to the brain or irreversibility.[9, 10] The failure of authoritative medical writings to formulate precise and scientific definitions of death, as well as the lack of express enumeration of obvious criteria, appear as the direct cause of similar defects in corresponding legal definitions, which are composed with the aid of medical reference material.

Extraordinary medical definitions of death. Traditional definitions of death, while adequate until fairly recently, presently appear unable to meet the special demands of medical progress. Extraordinary concepts are assuming increasing significance, and are illustrated by a Russian investigator, who stated that "the death of a living organism is the disintegration of its unity, interruption of interrelations of the organs and systems both with each other and the external environment."[11] In clinical situations, these

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concepts propose that "life" is really neurological, and that permanent cessation of cerebral function, irrespective of the activity of other organ systems, should be the determinant of death. The only material issue then becomes the nature of the tests, such as the EEG, that determine cerebral death. Standards for the establishment of such brain death have been proposed and utilized in certain instances in the United States[12, 13] and Europe,[14] but are not officially accepted by the medical profession. There is, moreover, no indication in court decisions or other legal authorities that these concepts are acceptable to American jurisprudence. Current legal concepts, in fact, appear inconsistent with extraordinary medical definitions of death.

Legal Definitions

Legal authorities, just as the corresponding medical authorities, have been vague, and lacking uniformity in definitions of death. Nevertheless, each legal definition accomplishes its purpose in determining the moment of death for the specific situation requiring adjudication. Death, therefore, cannot be considered as a continuing event, but must be defined as an event occurring at a precise time. This is essential in many legal relationships, such as inheritance of property, estate planning, insurance, marital relations, survivors' benefits, as well as problems involving civil or criminal liability.

Courts have defined death, as have medical and legal dictionaries, in terms of cessation of life, in terms of cessation of specific physiologic functions, or in terms of the rather nebulous "vital functions." A recent communication has suggested that the overall legal concept appears to be crystallizing as an unofficial inclusive definition of death composed of the following basic criteria: (1) cessation of "vital functions," (2) cessation of respiration, (3) cessation of circulation, and (4) impossibility of resuscitation. This definition was shown to be similar, but not identical, to the ordinary medical definition of death, and inconsistent with extraordinary medical definitions.[5]

The legal definition of death, in a specific instance, may relate to one or more of these basic criteria. For example, cessation of respiration, as evidence of death, may be noted to occur in a county other than the one in which the mortal blow was struck, and the assailant might be brought to trial in either county. When the moment of cessation of circulation can be determined, it may be said that the person at that moment dies, and this fact will then be of importance in the determination of civil liability. It may be said that the "vital functions" had not irrevocably ceased, and therefore a child was not stillborn, as determined by the Supreme Court of Nebraska, in adjudicating property rights involving the child and its mother.[15] Finally, it may be said that death is determined by the impossibility of resuscitation, as stated by the Kansas Supreme Court, in a case discussed below.

It should therefore be acknowledged that the various legal definitions of death, themselves vague and inconsistent, do give certainty in time and permit other important decisions to be made. The presence of death in the law, is thus a subordinate fact or consideration, and receives a more or less arbitrary assignment of time. But even as it is arbitrary it is useful, and more significant considerations are served by this certainty in time. These considerations, and the legal advantage in adjudicating death after the fact, emphasize the relatively greater medical necessity for interdisciplinary standardization of definitions.

Kansas Decisions

The Kansas Supreme Court appears in accord with the inclusive legal definition of death. As noted above, this definition is similar, but not identical, to the ordinary medical definition, and appears inconsistent with extraordinary medical definitions. The following cases illustrate the moment of death as cessation of perceptible respiration, cessation of "vital functions," and impossibility of resuscitation. It should be noted that the so-called "vital functions" are nowhere clearly defined, although it would seem reasonable to limit them to the brain, the respiratory system, and the circulatory system. The phrase may actually originate in antiquity, in the obsolete doctrine of vitalism formulated by Galen (131-201 A.D.).[16]

Noller v. Aetna Life Insurance Company (1935)[17] involved a controversy concerning insurance proceeds between the respective administrators of the husband's and the wife's estates. The wife had apparently shot the husband, then shot herself. Expert testimony established that bloody froth and bubbles (blebs) around the wife's mouth indicated that respiration had persisted for a short time. The court ruled that a jury might thus infer that the wife had lived a few minutes after being shot, and on the facts of the case might find that the wife had survived the husband.

In *United Trust Company v. Pyke* (1967),[18] the court enunciated a definition of death, which appears as a collateral expression (dictum) and does not therefore evoke the mandatory implications of a direct ruling. Property rights again required adjudication of the moment of death, namely, claims of inheritance (jointly and separately owned stocks, bonds, and checking account), rights relating to joint

tenancy survivorship, and life insurance proceeds. An elderly husband had murdered his sick wife and shortly thereafter committed suicide. The subsequent probate contest between the administrator of the husband's estate and the administrator of the wife's estate turned on the relative moments of death of the two individuals. Testimony revealed that the injuries to the wife would have caused immediate unconsciousness and almost instant death. Also, investigators had found no evidence of movement of her body after she was shot. The wife was therefore held to have predeceased the husband, and the property passed to the husband's estate. In the opinion, the court included the following definition: "Death is the complete cessation of all vital functions without possibility of resuscitation."

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tertiary and secondary amines. The claim for superior onset of action for the secondary amines has not been proven, although this is used in their promotion. At the present time, the drugs of choice in this group seem to be imipramine (Tofrānil) and amitriptyline (Elavil). The difference between them is that imipramine is more stimulant while amitriptyline has a strong sedative component. Hence, when some tranquilization is desirable (insomnia, agitation, etc.), amitriptyline is indicated; otherwise, imipramine is preferred. The remainder of the drugs are unquestionably effective. However, no evidence exists for superiority over the above mentioned two agents.

Side effects include atropine-like action which causes dryness of mouth, constipation, urinary retention. Occasionally Parkinson's disease symptoms are elicited. They can sensitize to seizures and epileptiform convulsions have been reported.

In summary, the drug of choice in the MAOI group is tranylcypromine. The drugs of choice in the tricyclic group are imipramine or amitriptyline depending on the depression. In general, the tricyclic compounds are preferable as they are safer than the MAOI. However, if the tricyclics fail, therapy with tranylcypromine is warranted.

RANCH MANAGERS AVAILABLE

Since management may often be the limiting factor when physicians consider purchasing land or additional acreage, it may be of interest to know that qualified candidates are seeking such positions. Vernon Geissler, Assistant Director of Placement, Kansas State University, informs us that a list of Kansas State seniors majoring in Animal Husbandry and specifically interested in farm and ranch management positions is available.

Although these seniors are specifically interested in farm and ranch management, a list of all seniors who are graduating with their résumé may be obtained by writing either the College of Agriculture or Mr. Geissler requesting a copy of the current Agricultural Seniors Placement Annual. Zip code of Manhattan, home of Kansas State University, is 66502.



Signs and Symptoms of Increased Intracranial Pressure Following a Febrile Illness With Vomiting

THE PATIENT WAS A WHITE BOY who was first admitted to the University of Kansas Medical Center in June 1960, when he was three years old. Six weeks earlier he had suddenly developed a fever that rose to 102 degrees, and he began to vomit after each meal. These symptoms continued, and over a two-week period he lost six pounds. Blood and urine tests were said to reveal "infection." Antibiotics were prescribed and the symptoms subsided. One month later he developed inward deviation of the eyes and an inability or unwillingness to walk. He spoke little, and with a slurred speech. He was hospitalized elsewhere, and a lumbar puncture was done. No medications were given. The child improved and was discharged. Following recovery he remained at home for three weeks, then again developed an unwillingness to walk. A few days later he began having difficulty using his arms normally. He had drainage from his right ear, and he refused to allow anyone to touch it. He did not have significant fever, but did vomit occasionally. One week later he was admitted to this hospital for the first time.

The patient did not appear to be in acute distress. He spoke only infrequently, but followed commands well.

There were shotty nodes in the neck; the ears were normal. The mucous membranes of the nose and throat were mildly congested. The lungs, heart, and abdomen were unremarkable. His gait was ataxic with elements of both trunkal and extremity ataxia. Bilateral papilledema was present with a paresis of the right sixth cranial nerve and cracked-pot resonance of the skull. The head circumference was 51.5 cm. The motor examination was unremarkable; reflexes were generally hyperactive with bilateral ankle clonus; and the Babinski response was absent.

The white blood count was 7,890 (62 per cent segmented neutrophiles, 34 per cent lymphocytes, two per cent eosinophiles, and two per cent monocytes). The urinalysis was normal. The skull x-rays showed separation of the sutures. The cerebral spinal fluid (lumbar) contained 234 white cells (4 per cent segmented neutrophiles, 96 per cent lymphocytes). The spinal fluid sugar was 38 mg per cent, and the protein was 70 mg per cent.

Because of the evidence of increased intracranial pressure a ventriculogram was performed, and there was generalized dilation of the ventricular system without evidence of a mass lesion. Air was seen to pass into the spinal subarachnoid space. The patient subsequently had a recurrence of vomiting and developed a fever of 102 degrees. The lumbar puncture revealed the following in the cerebral spinal fluid: white cells, 748 (94 per cent segmented neutrophiles, 6 per cent lymphocytes); sugar, 16 mg per cent; protein, 255 mg per cent. Cultures were negative for bacteria, acid-fast bacilli, and fungi. Antibiotics were given and the child improved over the next two weeks. Multiple lumbar punctures were done, and the pleocytosis, sugar, and protein returned to normal. When he was discharged his ataxia, papilledema, and general condition were much improved.

The second admission to KUMC was when he was six years old. He was talking well, but still unsteady in his gait. One month before admission he began to vomit, and complained of headache. His mother

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Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, gynecology and obstetrics, and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

wished to have him reevaluated. His physical examination was unremarkable except for the neurologic examination. He had moderate trunkal and extremity ataxia. Romberg's sign was present. There was chronic papilledema. The remainder of the cranial nerves were intact. There was moderate spasticity of the arms and legs with hyperactive reflexes and bilateral, sustained ankle clonus. Babinski's sign was present bilaterally. Sensory examination was intact.

Routine laboratory studies were within normal limits. Skull x-rays showed slight separation of the sutures and increased convolutional marking. Psychological testing demonstrated brain damage, but he was believed to be educable.

The third admission was one month later. Because of evidence of chronic increased intracranaial pressure it was felt that a pneumoencephalogram should be done. Air entered the ventricular system, and demonstrated generalized dilatation. Air did not pass over the hemispheres. The cerebral spinal fluid contained 9 white blood cells and the sugar was 20 mg per cent with a protein of 108 mg per cent. Cultures were negative for bacteria, acid-fast bacilli, and fungi. Three weeks after admission surgery was done. Postoperatively he did well. On discharge the patient's ataxia was greatly improved.

The fourth admission was one and one-half years later. The patient had done quite well until the day before admission when he developed increasing lethargy, nausea, vomiting, and somnolence progressing to stupor. Significant physical findings were limited to the nervous system. He could be aroused only by noxious stimuli. Extremity ataxia was present, and it was greater on the right than on the left. The pupils were equal with a diameter of 3 mm. They reacted very sluggishly to light. There was bilateral optic atrophy. Motor and sensory functions were grossly intact. The deep tendon reflexes were hyperactive, and more pronounced on the right than on the left. Babinski's sign was present on the left, but absent on the right.

Routine laboratory studies and x-rays were within normal limits.

Following admission the child's clinical appearance rapidly deteriorated, and he became decerebrate. Surgery was carried out as an emergency procedure. Postoperatively the patient improved to his pre-admission status.

The fifth and last admission was one month later. He developed postprandial vomiting (usually after breakfast), internal strabismus, and low back and neck pain. There was no history of fever. The pulse rate was 102, and the rhythm was regular. The respiratory rate was 24; temperature, 36.0°C. The head circumference was 55.5 cm. The examination of the eyes, ears, nose, throat, neck, lungs, heart, abdomen, was within normal limits. There was moderate tenderness to percussion of the lumbar and thoracic spine. The gait was unsteady and wide-based. There was bilateral optic atrophy. The remainder of the cranial nerves and the motor and sensory examination were within normal limits. The patient soon developed bilateral paralysis of upward gaze. He was not ataxic. His reflexes were normal, and the Babinski response was not present.

Routine laboratory studies on admission were within normal limits. The chest x-ray showed increased bronchovascular marking in the bases suggestive of bronchitis. Skull films were unremarkable except for the V-A shunt.

Because of his clinical symptoms and signs a vertriculogram was repeated, and after this procedure he developed a fever to 38.8°C. Cultures of the cerebral spinal fluid were negative. Cultures of the sputum grew pneumococci, alpha-hemolytic streptococci, *Nisseria catarrhalis, Hemophilus,* diptheroids and a few beta-hemolytic streptococci. On the second postoperative day his blood pressure was difficult to obtain, and he became restless and difficult to arouse. The diameter of his left pupil was 6 mm while the right was 3 mm. Both pupils reacted to light. Later that night he began having generalized seizures and became cyanotic. His temperature was elevated to 38.8°C, and his pulse rate was 140. He had three more seizures despite treatment with phenobarbital and paraldehyde. A tracheotomy was done, and copious secretions were aspirated. His general condition continued to deteriorate, and he died on the second postoperative day.

Dr. Mahlon Delp (moderator): Do you have any questions of Dr. Johnson?

David Byer (student):* Yes. Was there a history of exposure to mice, dogs or swine?

Dr. Jorge Johnson (resident in neurosurgery): No.

James Ellis (student): Was there any exposure to tuberculosis?

Dr. Johnson: There was no known exposure to tuberculosis.

Wayne Figgs (student): Is there any history of trauma before this illness or admission?

Dr. Johnson: At age two he had fallen and lacerated his scalp with no apparent sequelae.

Larry Glaser (student): What were the characteristics of this drainage from his right ear?

Dr. Johnson: I do not know.

Elizabeth Galton (student): What were the results of the spinal tap done before his first hospitalization?

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* Although a student at the time of the conference in January 1967, he, like the others referred to as students, received the M.D. degree in June 1967.

Dr. Johnson: According to the physician's note the white count was 32 cells per cubic centimeter (15 per cent lymphocytes and 85 per cent polymorphs); sugar, 34 mg per cent; protein, 78 mg per cent.

Mr. Byer: Were skin tests for histoplasmosis and tuberculosis done on more than the first admission, and was second strength PPD done?

Dr. Johnson: In both the first and second admissions tuberculin and histoplasmin skin tests were done, but there were no notes as to whether they were first or second strength. They were negative at 24 and 48 hours.

Mr. Ellis: Was there any evidence of pellicle formulation or guinea pig inoculation of the cerebral spinal fluid?

Dr. Johnson: There is no evidence of pellicle formations. I assume that all inoculations were done since the Public Health Department was involved in this, and everything possible was cultured and inoculated.

Mr. Figgs: Was the histoplasmin fixation test done and what were the results?

Dr. Johnson: Yes, and it was normal.

Mr. Glaser: What was the gross appearance of the brain at operation?

Dr. Johnson: I do not know.

Miss Galton: Were viral cultures done?

Dr. Johnson: Yes.

Mr. Byer: Could we have a description of the spinal fluid obtained at the last ventriculogram; the gross appearance and laboratory values?

Dr. Johnson: There were 5 white blood cells, 335 crenated red cells, 36 mg per cent of glucose, 126 mEq per liter of chloride and 62 mg per cent of protein. That was in January 1964.

Mr. Ellis: Were specific antibiotics used during the course of illness?

Dr. Johnson: After his temperature spike he was treated with penicillin, chloramphenicol, and sulphadiazine.

Mr. Figgs: Was the specific gravity of the urine fixed?

Dr. Johnson: The specific gravity was reported many times and at many levels.

Question from the audience: At the first lumbar puncture there were 32 cells, a sugar of 35?

Dr. Johnson: Yes.

Question from the audience: How long after the beginning of this illness was the lumbar puncture performed?

Dr. Delp: Two or three days.

Question from the audience: I am not entirely clear about the first hospitalization or the illness described at this hospitalization. How long was the child sick before he was first admitted and how long was he here on his first admission?

Dr. Johnson: He became ill on April 6, 1960. He was first hospitalized here on June 8, 1960, for about three weeks.

Question from the audience: I note in the protocol that the cerebral spinal fluid protein, sugar and cell count returned to normal during the hospitalization. Can you give us other values?

Dr. Delp: He had white counts of 253, 23, 748, 880, 91, 17, and 19.

Dr. Jacob Frenkel (pathologist): I would look at it a little differently. I think the lumbar fluid values were rather stable, and that the high ones were from the ventricular fluid. But if you look at the first and last counts you see about 70 mg of protein and the count was as low as 17. The fact there was some ventricular fluid protein made it high. I think the lumbar fluid was stable.

Dr. Delp: Total protein in those two ventricular fluids was 255 and 159. The subsequent were normal taps. They were 91 and 79 total protein. That was the last one done at that three-week illness of his first admission.

Dr. Frenkel: There is an interesting discrepancy of the spinal fluid totals, 234, with 34 polys and 96 lymphs and a sugar of 38, then it is up to 38 with a reversal of the cell type.

Dr. Delp: That is not spurious; that is correct.

Question from the audience: Was the patient treated with antibiotics before his first admission here, and what were the results of the culture of the first tap that was done?

Dr. Delp: Negative. He was treated with antibiotics, but we do not know which ones. We have no electrocardiograms, so, Mr. Glaser will present the x-rays.

X-Rays

Mr. Glaser: This ventriculogram *(Figures 1 & 2)* was done on the first KUMC admission. It shows a wide and dilated lateral ventricle with air passing into a wide and dilated foramen of Monroe, into the third ventricle which is also dilated, and from there is seen to pass down into the fourth ventricle. However, there is some question as to whether the air passes to the cisterns or down to the cervical region. These findings are suggestive of a low fourth ventricle obstruction.

This lateral skull film was done on a subsequent KUMC admission. There is an increased AP diameter, a widening of the sutures, no intracranial calcifications are seen, however, the convolutions are seen and the posterior pedicle of the sella is slightly eroded. All of these findings are compatible with increased cranial pressure.

We have a chest film that was done on the third

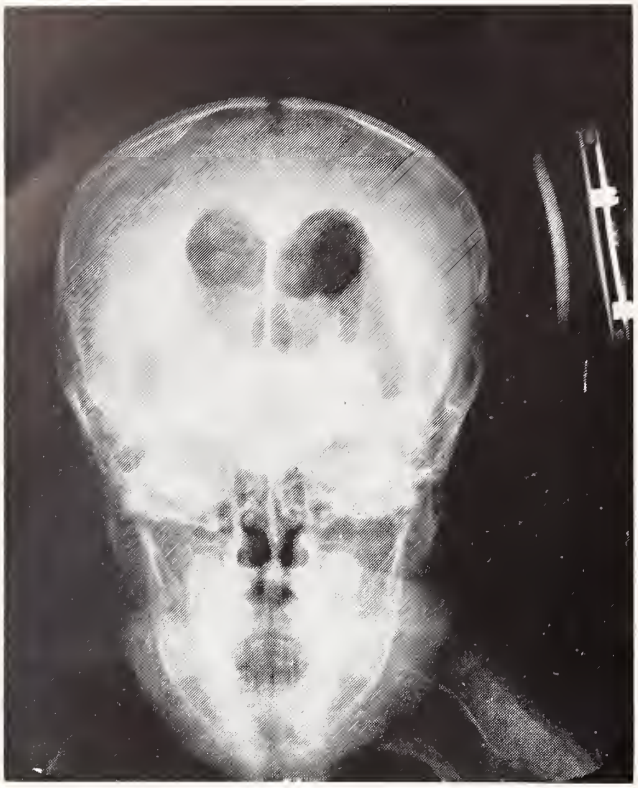


Figure 1. Ventriculogram (AP and Lateral)



Figure 2. Ventriculogram (AP and Lateral)

KUMC admission. I see no bony abnormalities. The cardiac silhouette is within normal limits. The costophrenic angles are clear. The bronchial markings are increased at the hilum.

The next is a chest film that was done about a month before the child's death. I see no bony abnormalities. The cardiac silhouette is within normal limits. He still had increased bronchial markings, but at this time both lung fields have a finely granular, almost ground glass, appearance which extends out into the periphery.

On the last chest film taken before death we notice that the patient had a tracheostomy, and he continued to have the same ground glass appearance in both lung fields. There is an increased infiltration in the right base.

Discussion

Miss Galton: We are presented today with a boy who at the age of three years developed signs and symptoms of increased intracranial pressure following a febrile illness with vomiting. Non-specific and non-localizing symptoms and signs of the disease process giving rise to increased intracranial pressure continued in varying degree until his death at the age of seven and one-half years. There was a definite basis of hydrocephalus in this child, so we base our differential on the causes of hydrocephalus.

Hydrocephalus can be caused congenitally by the Arnold-Chiari anomaly characterized by the protrusion into the spinal canal of the ventricular portion of cerebellar hemisphere and the downward protrusion of the medulla and the fourth ventricle. Congenital stenosis of the aqueduct of Sylvius may be associated, but it may also occur separately. Also the Dandy-Walker syndrome, characterized by absence of outflow tracts of the fourth ventricle, may be a cause. We exclude these because of lack of history and compatible findings.

Meningeal carcinomatosis may present with these signs, but we have no evidence of a primary tumor.

Of the infectious diseases of the brain causing hydrocephalus, brain abscess commonly follows an ear or sinus infection and can present with headache, vomiting, and signs of meningeal irritation; but it does not present with severe hydrocephalus. Sinusitis can also produce such in the presence of a venous sinus particularly in the superior longitudinal, cavernous or lateral sinus. These are excluded because of lack of focal signs, absence of empyema, and an incompatible clinical course.

The syndrome of aseptic meningitis, which is a symptom complex, can be produced by a number of clinical agents, a number of which are viral: nonparalytic poliomyelitis, Coxsackie, ECHO, mumps, lymphocytic choriomeningitis, and leptospirosis comprise 95 per cent of all cases of aseptic meningitis of established etiology. These cases present with normal glucose and protein in the spinal fluid, and recovery usually takes place within ten days.

In congenital syphilis hydrocephalus due to meningitis may occur in early infancy, but this is not compatible with our patient's course. The brains that are the unfortunate victims of *Toxoplasma* hydrocephalus are found to have periventricular calcifications. These were not found in our patient.

Bacterial meningitis ranks sixth among the causes of death in the pediatric group. The pyogenic infections originate in one of two ways: hematogenous spread through infected thrombi, or by extension from ear, sinuses, or osteolytic foci. Aqueduct stenosis can give rise to chronic meningitis and communicating hydrocephalus. The most common agents are *Hemophilus influenzae,* pneumococci, and *Neisseria meningitidis.* These account for 70 per cent of the meningeal infections in children.

Tuberculous meningitis may present with the spinal fluid findings compatible with those found in our patient, but, when untreated, the course is usually fulminating and death usually occurs within a matter of six weeks. Inadequately treated, the infection persists, and reoccurrence may develop for several years. Sarcoidosis may present with identical history and findings as does tuberculosis, but an older age group is involved. Fungi may invade the nervous system as part of a general infection along with involvement of lymph nodes or as the only site of infection. The more important agents are *Histoplasma capsulatum, Cryptococcus neoformas* and *Coccidioides immitis.* These present with findings characterized by signs of basal localization. The spinal fluid findings are identical with tuberculous meningitis. Of the agents mentioned only *Histoplasma* is endemic in this part of the United States.

This patient then developed signs and symptoms of increased intracranial pressure with vomiting following a febrile illness, and had the cerebral spinal fluid findings of a lymphocytic meningitis. He also had a dilated ventricular system. He had a febrile episode in which his spinal fluid showed increased neutrophiles, decreased sugar, and elevated protein. He recovered and did well for three years. At age six he again developed signs and symptoms of communicating hydrocephalus which subsided only to recur. At that time a shunt was done. The spinal fluid still showed signs of infection. The child again did well until the age of seven-and-a-half when he showed signs and symptoms of communicating hydrocephalus which included central nervous system localization and pyramidal tract signs. Emergency decompression relieved his symptoms. The child improved, but after another month developed the signs in another form, this time including neck and back pain and a wide spaced gait. A multitude of pathogenic organisms in the lung and the ventriculogram upset the child's delicate balance and he died.

We believe the cause was compatible with a chronic meningitis which had its onset with the initial febrile episode, and created a fibrinous exudate at the base of the brain obstructing outflow of the fourth ventricle into the subarachnoid area. The ensuing hydrocephalus produced the majority of signs and symptoms seen in this patient. However, the persistent cellularity, decreased sugar, and elevated protein of the spinal fluid gives us a basis for naming this condition chronic meningitis with the cause being, most likely histoplasmosis tuberculosis, or cryptococcosis.

In conclusion we have to admit our balloon burst, and we are left with a pile of negative cultures.

Dr. Delp: Thank you, Miss Galton. The child had a sixth nerve palsy seen more dramatically on the first admission here. Would you comment on just what kind of lesion causes this?

Mr. Byer: Sixth nerve palsy is quite frequently observed when there is increased intracranial pressure. I do not believe we discussed any neurological factors in this case and I do not believe we can localize any lesion to any great extent. We explain neurological findings by increased pressure.

Mr. Ellis: The only other indication, besides increased intracranial pressure, is the involvement of the nerve with the inflammatory process itself.

Mr. Figgs: I agree.

Mr. Glaser: Intracranial pressure is the best answer.

Miss Galton: I agree with hydrocephalus.

Dr. Delp: On the day of the child's death the serum sodium was 122, the potassium was 5.7, and the chloride was 89. Would you comment, Mr. Byer?

Mr. Byer: In tuberculous meningitis persistent hyponatremia is observed.

Mr. Ellis: This child had chronic meningitis with possible dissemination as we have evidenced from the chest x-ray, and it could have involved the adrenal glands with a functional hypoadrenalism.

Dr. Delp: Now, let us pin-point the immediate cause of death.

Mr. Bayer: I think he could have aspirated vomitus.

Mr. Ellis: Bronchial pneumonia.

Mr. Figgs: Bronchial pneumonia.

Mr. Glaser: I think he had a pneumonia, and also he was probably reinfected from the last ventriculogram.

Miss Galton: I agree.

Dr. William P. Williamson (neuosurgeon):† There is little trouble in saying that this child had communicating hydrocephalus. The point had already been brought out that the fourth ventricle was not obstructed. The air was all the way into the ventricular system. Hence, the obstruction was distal, namely in the subarachnoid space around the brain stem and its tentorial arch. We know that almost all commu-

† The late Dr. Williamson was professor of neurosurgery at the University of Kansas School of Medicine until his untimely death in November, 1967.

nicating hydrocephalus is due to chronic meningitis of some sort and it is the clinician's job to use the laboratory to give him an answer. We waited three and one-half years, but we did not get the answer. Our dilemma was that we could shunt and we could correct—or we could aid—the hydrocephalus by shunting the spinal fluid into the blood stream. We now can mechanically do this quite well with plastic shunts running from the ventricle of the brain into the auricle of the heart. Our dilemma was: Should we shunt infected spinal fluid into a non-infected blood stream and also leave a foreign body in the brain and the blood stream? It was for this reason that he was not shunted immediately while activity was reflected in the spinal fluid. Three years later when the spinal fluid was relatively innocuous we did do the shunt, and it apparently did sustain his life for another year-and-a-half. This is always a surgeon's dilemma, an infected postcommunicating hydrocephalus. Had his infection really been cured so we could shunt his spinal fluid into the blood stream and leave a foreign body in the blood stream, or are we just going to flare up his infection by this kind of surgical meddling?

Dr. Douglas Voth (internist): It seems to me that there are still a number of things we do not know about this child, but I wonder whether or not this was an acute infection which became subacute with intermittent acute exacerbations and finally chronic, and was not necessarily one of the more chronic forms of meningitis that had been discussed by Miss Galton. I am particularly intrigued by the process which began in the ear, or was in fact associated with ear involvement. A spinal tap done just three days after the onset of his illness showed pretty minimal findings, but I think significant in the spinal fluid. It appears these changes were altered by something: by natural history, by treatment, or by partial treatment. Later changes became apparent which would indicate that again acute infection was present. An infection which was bacterial, not tuberculosis or histoplasmosis. The reason that I say that, primarily, is because of the marked shift of the white count in the spinal fluid. How could all this take place? I do not know the diagnosis, but I suspect strongly that this acute problem began in association with the ear; either by direct extension, of which we have no real evidence right now, or by hematogenous spread to the cerebrospinal fluid and empyema formation in the subarachnoid space. Partial occlusion and localization occurred, and this was associated with a very thick mucopurulent exudate that follows this sort of infection. Subsequently it became more quiescent and perhaps very localized, and only localized at a very strategic location and finally an obstruction necessitated a decompression. I think perhaps the whole case really points out the fact of the primary importance of making an etiologic diagnosis, and if you do not have one you keep looking.

Dr. Delp: Dr. Miller, would you make a few comments?

Dr. Herbert Miller (pediatrician): I do have questions and I do not know if they were considered during this child's clinical course or not. It is obvious that this child had meningitis and the etiology was unknown. The question that I would raise is: During the clinical course of this child was consideration given to treating an unknown agent with certain antibiotics? I understand that in California where coccidioidomycosis is found, that things like this are done in certain patients, even though they do not uncover the organism. Was such a thought given to treating such a disease in this child? I think we could rule out tuberculous meningitis living this long untreated. This child was never in California, so I think we could eliminate coccidioidomycosis and that leaves you with turula, and perhaps histoplasmosis.

Dr. Herbert Wenner (pediatrician): I think there is more to this than meets the eye! Nobody has paid much attention to several aspects which I think deserve attention, namely, the cerebellar signs. The other thing that bothers me is the spinal fluid count, and I do not know the interval or the circumstances, but I cannot understand why he would have lymphocytes in one count and shortly thereafter change to polymorphonuclear leukocytosis. It just does not fit any concept I have as to acute pyogenic organisms or chronic indolent ones. I think I would agree with Dr. Voth that the initial episodes were related to some otic infection. I wonder if it did not extend and involve a deep-seated lesion such as an abscess of the cerebellum as well. The prolonged course makes it difficult to accept all this, and I am sure some of these would fit into cryptococcal but, again one has not explained, in my thinking, the erosion in the sella region of the brain. I wonder if this child initially did have meningitis with probably some separate episodes, but I would not be surprised to find some deep-seated lesions of the brain, such as an indolent abscess or tumor.

Report of Pathologist

Dr. Frenkel: While this is a very difficult case, I think it is also very instructive. It breaks several rules of CPC-manship. We all know the number one rule of diagnosis: consider two diseases only if the patient is over sixty-five. However, in this child we have to consider at least three disease processes. They are all important. First, I would like to illustrate the two diagnoses discussed so far.

An organized fibrinous exudate, a subdural membrane, covered parts of the brain, largely the result of the original purulent infection *(Figure 3)*. However, there were some additions to it from a later infection.

As Dr. Williamson indicated, there was partial obstruction of the ventricular system. The Pudenz valve helped to alleviate the partial obstruction, or a potential obstruction in the aqueduct. The foramina

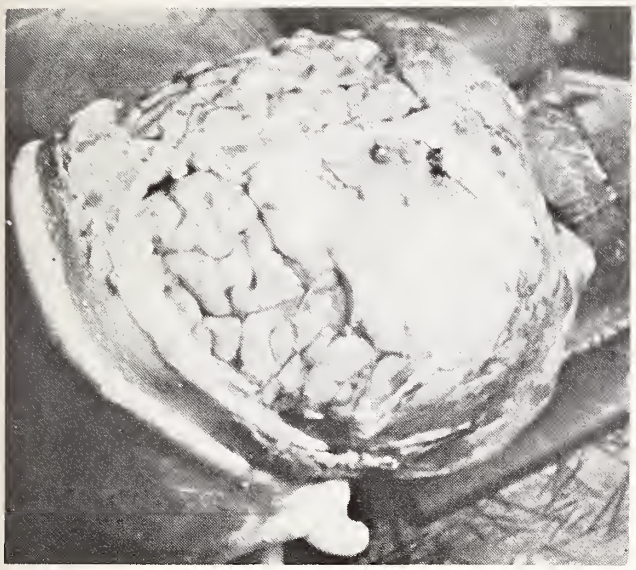


Figure 3. Subdural membrane over left cerebral hemisphere.

of the fourth ventricle appeared patent as indicated by the passage of air at several different times.

Much of the ventricular ependyma is well-preserved. In answer to Dr. Wenner's comment, the ventricular fluid usually had more polys and contained more protein than the subarachnoid fluid, roughly four times as much. The shift toward polys was more noticeable in the ventricular than in the subarachnoid fluid during the first admission.

There is now additional exudate covering parts of the ventricular system, the outflow tract of the Foramens of Magendie and Luschka, and the Meninges of the pons, cerebellum, and medulla. Several sections show granulomas with giant cells. The vessels are not involved, organisms are not seen readily, and there is little necrosis. This is a chronic smoldering inflammation which I think can be separated from the initial episode.

There are a few cerebral lesions suggesting infarction. I have not been able to find the vascular lesions relating to these, and there are a few cerebellar infarcts apparently from vascular lesions.

I was unable to find any organisms in the brain or meninges that I could convince myself of, so, we go to the lungs.

These showed increased density on x-ray, and we see some of that reflected microscopically by fibrosis. Also, there was some atelectasis, but this was probably recent. Most important, however, were granulomas with giant cells epithelioid cells and occasional necrosis *(Figure 4)*. Only a few associated *Histoplasma* organisms were found histologically. They were not culturable, and appeared to be dead.

The mediastinal lymph nodes were involved with only a few small foci of granulomatous inflammation. For that reason this is not likely to be tuberculosis. With a Ghon lesion one would expect extensive involvement of the lymph nodes. However, two colonies of *Mycobacterium tuberculosis* were isolated from the autopsy cultures. I think these are spurious findings related to infection and not to clinical disease. Granulomas again were found in the spleen and liver. Most of them were not caseating, which gives me confidence in feeling that we did not miss any mycobacteria on the sections.

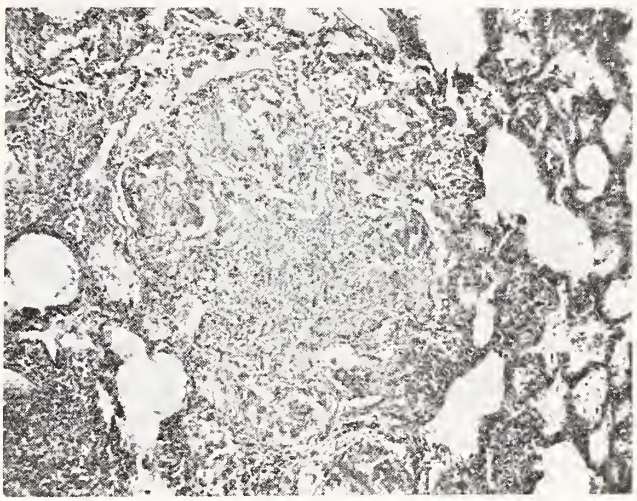


Figure 4. Fibrosing granuloma in lung, HE 90 ×

We finally come to the adrenals, which on multiple cross sections are seen to be necrotic *(Figure 5)*. I would estimate about 95 per cent destruction was present, with the critical events occurring recently, between the fourth and fifth admission. A few cells remain, showing the usual changes of hypertrophy, almost ballooning degeneration due to the excessive ACTH stimulus *(Figure 6)*. In the granulomas, especially in necrotic portions, an occasional organism was found, small dots enclosed in circles, suggestive of *Histoplasma*. None of them looked viable. The Grocott stain will convince even the incredulous that these are compatible with *Histoplasma (Figure 7)*. They are too regular in shape, not encapsulated and too small for *Cryptococcus*. Although statistically, in the presence of central nervous system inflammatory disease, cryptococcosis would be much more likely, histoplasmosis was found here.[1-3] I would say that

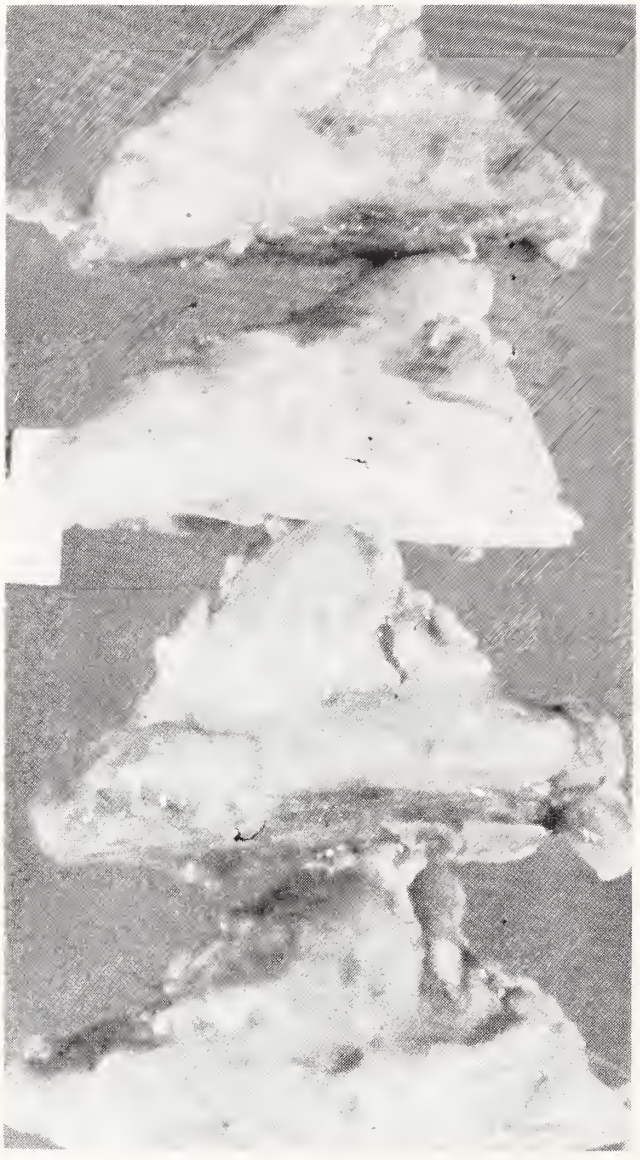


Figure 5. Multiple cross section of adrenal gland showing almost complete necrosis.

this patient did not die from his central nervous system disease, however. I think they were well diagnosed and treated.

The histoplasmic meningitis, which was probably present, would have been missed if the adrenals had not become involved.

It went unnoticed that on a previous admission the patient's eosinophile level ranged from between 3 per cent and 5 per cent, and that between Christmas and New Year's there were three measurements between 10 and 11 per cent. Whereas at Christmas eve, when his Pudenz valve was checked, he sustained halothane-nitrous oxide anesthesia very well, his blood pressure became unobtainable within one hour of the beginning of anesthesia when he reentered January 23. I believe the clinical summary states erroneously that it became difficult to obtain

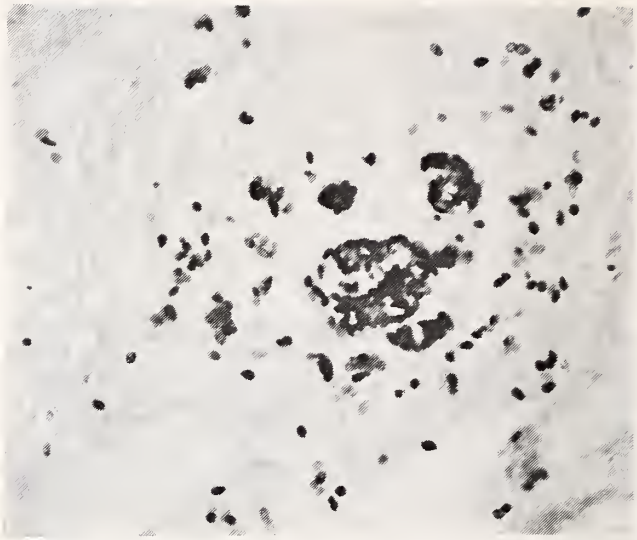


Figure 6. Adrenal cortical necrosis below, with granuloma extending from the adrenal capsule. The preserved adrenocortical cells seen between fat and capsule above, are representative of the very few and small remaining islands of adrenal cortex. HE, 50 ×.

his blood pressure on the second day. Early on the morning of surgery his blood pressure was 100/50, but after he received 50 mg of pentobarbital, 20 mg of meperidene, followed at 7:00 a.m. by 0.15 mg of scopolamine, anesthesia was started at 8:00 a.m. with a blood pressure of 80/50. Already at 9:00 a.m. a blood pressure was unobtainable. It was not measureable in the recovery room. A nurse on duty until 9:00 p.m. made about six entries saying, "blood pressure unobtainable." The next nurse on duty only recorded eye and pupillary signs. It was on January 25, two days after surgery, that a physician's entries of two blood pressures: "70/?" appear.

What other evidence of adrenal insufficiency do we have? I think it is interesting to speculate that some of the patient's convulsions were on the basis of adrenal insufficiency.[4] He received 2,360 ml of saline and glucose parenterally over two days, with an output of only 620 ml. His hematocrit dropped from 45 to 38 within four days, without significant blood loss. I believe we have to think of water intoxication. The sodium level was only 122 in spite of the sodium administered by clysis; the potassium level of 5.7, chloride 82, and CO_2 19, are all consistent with adrenocortical insufficiency.

The administration of 200 mg of phenobarbital, 50 ml of paraldehyde, and 100 mg of diphenylhydantoin, failed to control his convulsions, although these are the usual doses for a boy of 43 pounds with 40 per cent of the body surface of an adult, and they would appear ample in an Addisonian patient where the catabolism of these agents is slowed. It is well known that adrenal insufficiency cannot be

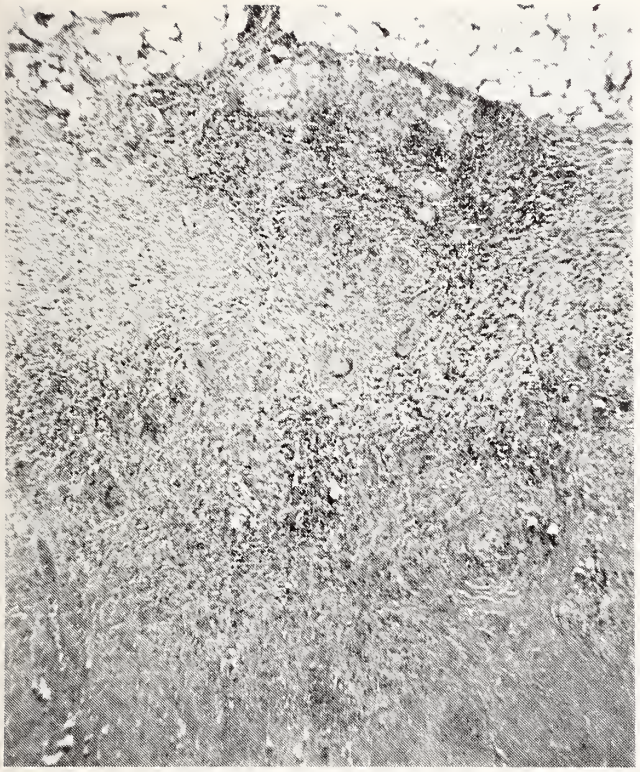


Figure 7. Fungi, probably Histoplasma, in necrotic portion of adrenal gland. Grocott's methenamine silver stain, 500 ×.

alleviated by giving glucose and saline alone. The lack of glucocorticoids maintaining vascular tone was expressed by hypotension and shock.

It is conceivable that a culture for fungi from the patient's meninges or lungs in December 1964 might have revealed *Histoplasma.* However, the occurrence of a secondary fungal meningitis is almost unpredictable, and it was believed that cryptococcosis had been ruled out previously. The evidence in December favored obstruction of the Pudenz valve as the cause of the patient's intracerebral pressure symptoms. If a culture had been taken on January 23, 1965, the diagnosis would have been too late. Only the appearance of eosinophilia in December, and recently the disappearance of blood pressure readings during and following anesthesia, the hyponatremia, hyperkalemia, and hemodilution in the absence of significant blood loss, could have been tip-offs for Addison's disease and led to the suspicion that the convulsions might indicate water intoxication.

Dr. John Kepes (pathologist): Dr. Frenkel, you have mentioned this problem about the surgeon's dilemma, since you said that the adrenal involvement in its present form occurred between the fourth and fifth admission. Do you think that it is possible that a smoldering, or a more or less contained meningeal infection spread out through the vascularization of the meninges into the blood stream and got to the adrenals? Of course, the alternative to this is that there has been a smoldering infection in the adrenals all along and it flared up for some other reason.

Dr. Frenkel: I did not say that the adrenal infection started between the fourth and fifth admission. I believe the critical amount of destruction occurred then, since he had withstood the stress of surgical anesthesia well on December 24, although at that time the eosinophile level was already at 10 per cent. There was no electrolyte imbalance and his blood pressure was normal. I would think that he had had *Hemophilus influenzae* meningitis as his first diagnosis, as indicated by the previous discussants, especially in view of the difficulty in treating the meningitis.[1] According to Harter's article on preliminary antibiotic therapy in bacterial meningitis, this is followed by twice the failure rate seen in patients treated definitively right away.[6]

Histoplasmosis is the second diagnosis, and adrenal insufficiency is the third. I think we are all familiar with the difficulty in treating *Hemophilus influenzae* meningitis or meningoencephalitis once it has relapsed.[1, 6] The patient was treated twice before he came to this hospital; the first time with sulfadiazine or chloramphenicol; the second time with demethylchlortetracycline, both of them inadequately. At this hospital he was treated with 4 million units of penicillin, 1 gm of chloramphenicol and 2 gms of sulfadiazine.

At the time of his second admission, his histoplasmin test was negative. This infection occurred rather recently, between the third and fourth admission. There was no evidence that histoplasmosis was progressive at the time of his death, except in the adrenals, where corticosteroids interfered with the expression of immunity achieved by the body as a whole.[5] None of the organisms was viable by histology or by culture.

Question from the audience: Do you think the previous meningitides were *Hemophilus influenzae* also?

Dr. Frenkel: Yes. As Dr. Williamson indicated, meningoencephalitis persisted for roughly a year after which the Pudenz valve was inserted. The whole course was initiated by *Hemophilus influenzae,* although it was not cultured later on, we have to think also of the possibility that L forms might persist and an inflammatory reaction directed at them.

Dr. Delp: I am sure that all the medical students and others realize that clinical medicine can be extremely frustrating, and perhaps one of the most frustrating aspects of clinical medicine is that which is known to the neurosurgeon. Let me also state that this exercise which we call the CPC has no duplicate any place else in the professional world. It is a

place that we face our frustrations and try to come up with an answer.

Primary Diagnoses

Chronic Meningitis, severe, with formation of a post inflammatory subdural membrane over the outer surface of the cerebral cortex.

Hydrocephalus, moderate, with mild enlargement of the cranial cavity and attenuation of the calvarium (history of post-meningitic communicating hydrocephalus at the age of 2 years). Burr hole (1 cm) of the right parietal region of the calvarium and presence of a Pudenz shunt (left lateral ventricle of the brain to the superior vena cava). Thymic atrophy (weight 6 grams).

Non-specific Ependymitis of the lateral, third and fourth ventricles, and the cerebral aqueduct with gliosis and Occlusion of the Opening of the Cerebral Aqueduct and massive dilatation of the third ventricle (history of non-communicating hydrocephalus diagnosed five days before death).

Histoplasmosis, Miliary, Subsiding, with: Granulomatous Pneumonitis, Advanced Adrenal Necrosis, Almost Complete, Granulomatous Leptomeningitis and Ependymitis, Advanced (of midbrain, pons, medulla, and spinal cord, with entanglement of cranial nerves III through XII). Granulomas in liver, hilar, lymph nodes, pancreas, kidney (isolated). Morphologic identification of fungi compatible with Histoplasma, non-viable in adrenal (abundant), basilar meninges (sparse), lungs (sparse). Tuberculous infection of lung, subclinical and without identifiable histologic lesions (culture of two colonies of Mycobacterium tuberculosis from lung at autopsy).

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REFERENCE LISTS

How long should reference lists be? There is rather general agreement that in most of the articles in state journals a list of five or six references will usually be adequate. Except in special review articles, or research articles, complete lists of references are not needed, and, in fact, are out of place. A general guide is to include in a reference list: (1) Only articles which have actually been read in the original (not an abstract or a translation) and (2) Only articles which are actually mentioned in the text of the paper.

How many reference numbers should be in the text? Remembering that they are distracting to the reader as he goes through the article, they should be eliminated if they serve no purpose. If a quoted author appears in the reference list only once, it is obvious that this is the article to which reference is made, and no "superior number" is necessary for it cannot be confused. Papers are written to be read, and it is desirable to keep them interesting and to avoid distractions whenever possible.

Cancer Page

Patient History

The patient was a 32-year-old white female, Gravida 7, Para 6. Her last pregnancy, four years earlier, ended in a spontaneous abortion. Her chief complaint was abnormal vaginal bleeding. Pelvic examination was felt to be within normal limits. No Pap smear was obtained and no biopsy performed prior to initiating therapy. A simple total hysterectomy was executed and revealed squamous cell carcinoma of the cervix. The patient received post-operative x-ray therapy. She died of uremia, secondary to local recurrence in less than two years.

Comment

As a general rule, some attempt at diagnosis should precede therapy. The diagnosis would probably have been made if a Pap smear had been done. A D&C, coupled with a conization, would seem a logical step and would certainly have revealed the cause of her symptoms. Either a radical hysterectomy with a pelvic lymphadenectomy or intracavitary radium in conjunction with external radiation would have been acceptable therapy. A simple total hysterectomy for invasive squamous cell carcinoma is absolutely contraindicated.

Conclusion

Misdiagnosis.

—Prepared by Committee on Control of Cancer

The President's Message



DEAR DOCTOR:

When a Kansas physician says "I wish the Medical Society would do something" about a problem of which he is aware, how does the Kansas Medical Society pursue his suggestion?

First, we must hear about the problem. Your elected officers and your permanent executive staff welcome inquiries or suggestions regarding any issue which involves our members or the health of the citizens of Kansas.

Once a problem is presented we can investigate it and act in several ways.

If immediate action is indicated, the Executive Committee, a small, compact, fast-acting body, composed of your elected officers, can convene without delay and take action.

In matters of a general nature, the Council, representing leaders from each of our eighteen districts, plus the elected officers, meets twice yearly and more often, if necessary, to deliberately bind the Society until the next House of Delegates meeting.

The five Commissions—Education (William R. Roy, Chairman); Health Services (Spencer C. McCrae, Chairman); Scientific Study (H. T. Gray, Chairman); Society Organization (Clair C. Conard, Chairman); Sociology and Economics (Kenneth L. Graham, Chairman) with eighteen members each, appoint committees each year to study pertinent problems and concisely present resolutions to the annual House of Delegates meeting. The Commissions do the bulk of the work of the Society. They presented most of the seventy-five resolutions at our House of Delegates meetings in Topeka. The Commissions and the committee members under the Commissions accounted for most of the seven hundred trips made on Society business last year.

Our Society has developed a reputation for solidarity of action and for workable, sensible programs. In meetings of Society officers at the national level it has been pleasant indeed to hear so many complimentary references to the "Kansas way" of coping with various issues. Our relationship with Specialty groups, our rapport with the Medical School, and our actions on Title XVIII and XIX are among the functions which many states try to emulate.

If you sense a problem—let us know. If you are called on for Commission or Committee duty I have complete confidence you will faithfully serve the Society.

Sincerely,

J. P. Morgan

President

KaMPAC—Challenge for '68

During the 1968 annual meeting of the Kansas Medical Society the KaMPAC organization gained 67 new members. This represented the best effort yet at a state meeting exhibit.

A great deal of thanks goes to the ladies of the Woman's Auxiliary, both from Shawnee County and over the state, for their steadfast perseverance in the booth. To Mrs. Lucien R. Pyle—better known as "Katie"—and her stalwart team, a thunderous "Well Done"!

At this point KaMPAC has 380 members out of a possible 3,000. However, our goal for 1968, the most crucial election year in the history of this great country, has been set at over 500 members. This would represent an increase of 90 over 1967 and, of course, would be the best yet for KaMPAC.

Many state societies have from one-third to two-thirds of their membership belonging to PAC, so it would seem that this goal of 500 could be surpassed easily by July 1, 1968. This date holds some magic in that the KaMPAC Board of Directors will be "dividing the pie" among the respective candidates shortly after the primary election in August.

As you well know, between August and November 5, 1968, the candidates will be making commitments for all varieties of publicity. The earlier these commitments are made, the better the space on billboards, time on radio and television secured by the candidates. THIS TAKES MONEY!

Many of you recently received a letter regarding your 1968 membership in KaMPAC. Whether you received this letter or not, now is the time to come forward and send your check to the KaMPAC office, 202 Medical Plaza Building, 10th and Garfield, Topeka, Kansas 66604. The amount is $20 for yourself and $20 for your wife.

THE CHALLENGE—*500-plus* members by July 1, 1968.

Fraternally yours,

Norton L. Francis, M.D.

Chairman, KaMPAC

Medicare—Medicaid

TITLE XIX IN KANSAS

A report to the physicians on the program of Title XIX (Medical Assistance) is in order. I am sure that the doctors of Kansas are interested in the progress of this program that so many physicians have spent so much time to help develop.

Between the inception of this program and April 19, 1968, Blue Shield has received claims for services for:

Physicians	$ 4,682,182
Hospitals	6,215,616
Pharmacals	3,524,033
Sub Total	$14,421,831
To all other providers	962,492
Total	$15,384,323
Total payments for services made by April 19, 1968	$11,625,200

Although in the past few months there have been delays in claim payments, particularly in claims from certain counties, the causes for the delays are being remedied and payments should be made more promptly in the future. The backlog of claims received by Blue Shield and not processed is as follows:

Non-Medicare Related:	
Unprocessed	1,400
Rejected	400
	1,800
Medicare Related:	
Unprocessed	19,023
Rejected	15,962
	34,985

Attention should be called to two areas in the above table:

1. The large number of unprocessed claims in the medicare related claims is due to the fact that Blue Shield cannot process a Title XIX claim until it has been processed by Medicare and returned to the Title XIX department. This does not represent a large sum of money as Title XIX then pays the balance ($50 deductible and 20 per cent).

2. Rejects are due to improper code numbers, eligibility dates and medicare relationship. The determination of these factors require manual processing and they take time. This does not mean that the claim is rejected for payment.

We appreciate the patience that the physicians of Kansas have shown in the delays in payment under this program. We request your tolerance of our inadequacies. The development of new snap-out claim forms and other improvements should simplify the process of claim filing in your offices and expedite the processing of claims in Blue Shield and the state departments.

LUCIEN R. PYLE, M.D.
Medical Coordinator to Social Welfare

Official Proceedings

Report of the 1968 Meeting of the House of Delegates

Transactions of the 109th Annual Session of the Kansas Medical Society are published in this issue of the JOURNAL. During the first session the chairman of each of the five commissions made his annual report and introduced resolutions recommended by his commission. Resolutions from the Council, several county and specialty societies were also introduced at this session. All resolutions, with the exception of No. 40 and No. 61 which were adopted at this meeting, were referred to one of three reference committees. Reference Committee No. 1, Dr. Arthur Cherry, Topeka, Chairman, received resolutions on Socio-Economics; Reference Committee No. 2, Dr. Thomas Butcher, Emporia, Chairman, received resolutions on Comprehensive Health Planning and Reference Committee No. 3, Dr. M. Robert Knapp, Wichita, Chairman, received resolutions on Verification of Professional Charges. Resolutions not pertaining to the three named subjects were divided between Committee No. 1 and No. 2.

The resolutions appear in numerical order under the minutes of the second House of Delegates. Resolutions failing to pass are retained in the minutes at the executive office, but are not recorded here.

FIRST SESSION

The first meeting of the House of Delegates was convened at the Ramada Inn, Topeka, beginning at 3:00 p.m. on Sunday, April 28, 1968. The meeting was called to order by the Speaker, Dr. Thomas F. Taylor of Salina.

The primary election was held for the offices of first and second vice president. Nominations were taken from the floor for the offices of speaker and vice speaker of the House of Delegates. The election of officers for all positions will be held at the second House of Delegates meeting.

Dr. James A. McClure, Topeka, chairman of the Advisory Committee to Welfare, announced that his committee had met numerous times during the year and that he met regularly with the Board of Social Welfare. Copies of a letter from Mr. Robert Anderson, chairman of the Board of Social Welfare, to Dr. McClure were distributed to members of the House. Dr. McClure then explained the manner in which the State Board of Social Welfare will be required to include chiropractic services under Title XIX.

Dr. Lucien R. Pyle, Topeka, medical coordinator to the Department of Social Welfare, reported briefly on Title XIX. He stated that during the first ten months of operation, $15 million had been spent in Kansas, of which $6,200,000 was for hospital costs; $4,682,000 was paid to physicians; $3,552,000 for drugs; and $962,000 for all other services including optometry, dental and so forth. He stated that in the opinion of the State Board of Social Welfare there is no present danger or proration.

REPORT OF THE CONSTITUTIONAL SECRETARY

Following is a summary of the membership of the Kansas Medical Society for 1968.

Dues-paid members	1,483
Delinquent members	198
Emeritus members	36
Honorary members	116
In-service members	20
Leave-of-absence members	42
	1,895

The membership in 1967 was 1,875. The 1968 membership represents an increase of 20 members.

SPECIAL REPORTS

The Editor

My reports in 1965 and 1966 presented a gloomy picture of JOURNAL income as compared to expenses, because of the sharp decrease in advertising. Last year I could say that the situation was improved, and today I am glad that I can report to you that the JOURNAL is again self-supporting, by virtue of a 52 per cent increase in 1967 advertising income over that in 1966.

Needless to say, we are pleased with this improvement and the elimination—at least for the present—of the spectre of having to ask the Society for additional funds. There is, however, one ugly head rearing itself with an additional threat to the JOURNAL's financial security. In December 1967, a Treasury decision forwarded to the Internal Revenue Service directed that "income of certain exempt organizations from unrelated trade or business" was to be subject to income tax. The income in question is that derived from JOURNAL advertising, and would, of course, apply to all journals which are published

by various medical societies. The exact interpretation of this directive is not yet clear, and consequently the impact on the JOURNAL, if there is any, is not known. As with some other governmental directives, there can be different interpretations which do not all agree—and which are difficult to understand.

We have several new features starting in the JOURNAL this year, which we feel are an addition, and which we hope you will all enjoy. The "CP + T Newsletter," dealing with clinical pharmacology and toxicology, is prepared at the University of Kansas Medical Center, and has prompted favorable comments and should continue to be useful. For several issues there has been a "Law-Medicine Comment" feature, written by Dr. M. Martin Halley of Topeka, which has aroused a good deal of interest because of the increasing importance of these problems today. A series of Cancer pages is starting next month, prepared by our Committee on Control of Cancer, which should be interesting and instructive. Some other features are also in a planning stage.

I would again urge the submission of reports of committee activities which are of interest to our members (and I think that most of them should be), for the news-reporting element of the JOURNAL, and other state journals, is one of our important functions. I would also hope that some other committees might have an educational program worth publicizing, as the Committee on Control of Cancer is now doing, and as the Maternal Welfare Committee did several years ago.

The committee of the Commission on Society Organization, which is to study the JOURNAL and its future, is under the chairmanship of Dr. Robert P. Woods, and has started some investigation and made plans for others. The report which Dr. Woods has submitted is encouraging to us, and we will welcome the continuing advice of such a group, as an expression of the wishes of the Society members.

Finally, I again extend my appreciation to all those who have contributed so significantly to the support of the JOURNAL, and again I ask that any of you give us suggestions and comments. I know that these will not all be favorable, but they could all be helpful in making your JOURNAL become what you would like to have it be.

ORVILLE R. CLARK, M.D., *Editor*

Blue Shield

The past year has been a big one for Blue Shield. Perhaps its biggest ever!

Everything has been big. Blue Shield began the past 12 months with big objectives. As the year progressed, it encountered some big problems. Now, in looking back, I think it can honestly be said that Blue Shield has made big progress.

After assuming the administration of Medicare, starting the Prevailing Fee Program, initiating the administration of Title XIX, and expanding CHAMPUS, I can see no large new programs in the near future. We might say that in 1967-1968, we began re-grouping our forces. We all realize that there are strong influences at work, to try and change the present system of medical practice. In order to combat this, Physicians, the State Medical Society and Blue Shield must be strong partners. I feel Blue Shield took large strides last year toward fulfilling its part of this objective.

To help you share my view of this "biggest-yet" year of Blue Shield progress, I need to first review the basic Blue Shield philosophy. It is the frame of reference by which we can most validly judge Blue Shield's efforts.

Blue Shield feels that our only reason for existence is to help Medicine serve the public. We are firmly convinced that the system of free enterprise in health care is the best method through which Medicine can accomplish its goals. Blue Shield believes that voluntary prepayment is the only method that will assure the continuation of free enterprise in health care. Thus, to best help Medicine and the public, Blue Shield must successfully perform the following four major tasks:

1. It must grow—it must cover more of the private sector of the public.

2. It must expand the scope of services available under its programs of voluntary prepayment.

3. It must involve itself in the administration of government health care programs so that the principles of voluntary prepayment can be incorporated into the government plans and thus give Medicine a voice in their administration.

4. It must maintain and expand public confidence in voluntary prepayment. It must find ways to demonstrate that Medicine and Blue Shield are indeed responsible stewards of funds entrusted to them, both through voluntary prepayment and through tax appropriations.

We believe that our successful performance of these tasks coupled with efficient operations will allow Blue Shield to fulfill its responsibilities to help protect and strengthen the free enterprise system through which physicians can best serve the public interest.

Now, what *did* we do for the Medical Profession and the public last year? How *did* we measure up in respect to the four major tasks that I've just outlined?

First, let's look at growth. We increased our mem-

bership to include over 670,000 Kansans in the 103 counties that our Plan Area serves. That's roughly 36 per cent of the population and includes about 35,000 new subscribers.

Even more important was our success in upgrading persons to a really meaningful predictability of coverage. At present, 96 per cent of these 670,000 Kansans have Prevailing Charge coverage. That's 24 of every 25 Blue Shield subscribers with full predictability. Over 90 per cent of Blue Shield subscribers now have Diagnostic X-ray coverage and nearly 30 per cent have out-patient laboratory benefits.

Let's now look at growth in terms of expanding Blue Shield's influence and the principles of the Prevailing Charge Plan into government programs. The past 12 months saw Blue Shield take over the responsibility for payment determination for Title XIX (Medicaid) in Kansas. Along with the Kansas Medical Society, we insisted upon using the Prevailing Charge concept, and this subsequently became the basis for the program. Last summer Blue Shield also qualified the Prevailing Charge Plan as the Kansas program for CHAMPUS, which covers some 40,000 dependents of active military personnel and retired servicemen.

Add this to Medicare and Blue Shield's own segment. What's the score? Over 1,300,000 Kansans receive medical care under the principles and policies of the Prevailing Charge Plan. That's nearly 54 per cent of the state's population, and that *is* big progress in serving the goals of Medicine.

A second major task of the past 12 months was earlier described as expansion of the scope of services available under Blue Shield programs. How well have we done in this area? Let's examine the following "progress notes":

1. Plan 65, the Blue Cross-Blue Shield plan which complements Medicare, was significantly improved in late 1967. Coverage for home and office services was added. The awkward and confusing "co-insurance corridor" was removed. The result is a program which can be simply described as picking up that portion of Part B Medicare which is not covered by the government. Blue Shield also found a way to process Plan 65 payments from the Medicare claim form and thus expedite claims service as well as expand the scope of coverage.

2. New Major Medical programs were developed in 1967 as were extensions of psychiatric coverage. Today, approximately 52 per cent of Blue Shield's group subscribers hold some form of Major Medical coverage that broadens the horizontal spectrum of their prepaid health care. Over four of every ten Blue Shield group subscribers have some kind of extension of psychiatric benefits going beyond the 30-day limitations of their basic contract.

3. A most significant experiment in Blue Shield expansion of benefits in recent months can be found in the launching of the "Wichita Out-Patient Experiment." This is called Experiment 68 and extends Blue Shield coverage to out-patients in certain groups in Sedgwick County. It covers professional services which in the past have been limited to hospital in-patients. This includes office consultations and laboratory tests, out-patient and office inhalation therapy, EKG's and psychiatric treatment. The hypothesis is that prepayment of such services in the doctor's office is in the interests of both the public and the profession. I feel strongly that keeping the physician's office the center of medical care will not only encourage better medicine, but also make this care more economical. This is a closely controlled experimental group with approximately 12,500 in the experimental group and an additional 12,500 in the control group. Even in its preliminary phase, this has received interest of medical groups at the national level. If our hypothesis proves valid, tomorrow may see several hundreds of thousands of Kansans covered under such a program.

The third major Blue Shield task was to become effectively involved in the fiscal administration of government programs so that the advantages of the Prevailing Charge Plan could be realized within these areas. I have already told you of Blue Shield's success in qualifying the Prevailing Charge Plan as the mechanism for operating Title XIX and CHAMPUS. You all know, as well, that we progressed into the second year under Medicare.

How well are we doing in maintaining the advantages thus secured for the public and the profession?

The answer is "better than you may think." Every feature of the Prevailing Charge Plan has been retained in its extension to Medicare, Medicaid and CHAMPUS. It is the same program. It provides the same advantages to patient and physician.

During this last year, Blue Shield steadfastly maintained each basic premise of Prevailing Charge in its administration of government programs. The confidentiality of individual charge registrations has been upheld.

Blue Shield has worked for improvements in regulations and refinements in procedures which will simplify the operation of government programs. An example is the joint claim form for persons under both Social Welfare and Medicare. We are very close to completing the work on this form. It will be available in the near future. When implemented, it will cut your present paperwork for these patients in half.

Blue Shield's fourth major task was earlier described as maintaining and expanding public con-

fidence in the Prevailing Charge Plan. This goal demands a series of coordinated efforts because public confidence is based on *real* performance:

—We must deliver the benefits promised.

—Claims must be handled promptly and accurately.

—Policies must be clear, reasonable and consistent.

—There must be a feeling of trust that costs are proper and fair.

—There must be an indication the profession and Blue Shield work together in the public interest to avoid abuse and unfair practices.

In working toward this goal of maintaining public confidence, Blue Shield and the profession have taken several major steps.

Blue Shield has embarked on a vigorous effort to improve the administration of the Prevailing Charge Plan and all the government programs in order to provide a more prompt and accurate claims service. I will admit that we have had some problems in administration in the past; however, we feel at this time, that we are at the point of significant accomplishment in regard to this. We have hired an outside consulting agency to help us with our electronic data processing program. We are well into this program and it should be completed by October of this year.

We have already converted to the Kansas Relative Value Schedule for all physician services, with the exception of internal medicine. We have just concluded an extensive project to "clean up" charge registration lists so that proper payments, according to mutually agreed records, can be obtained.

In addition to the above, we have had to expand our office space and should move into a rather large addition to our building later this year.

The House of Delegates is being asked in Resolution No. 55 to approve a Statement of Prevailing Charge Policy which is the product of months of work between the Blue Shield Executive Committee and physicians at the grass roots level. If approved, we will have achieved the foundation for a sound working relationship built upon mutual agreement and understanding between Kansas Physicians and Blue Shield.

To further improve Blue Shield and Medicine's working relationship, we are seeking to further establish a regular system of direct communication with representative committees of General Practice and all the specialty groups. Some of these liaison committees have already functioned, and their work has achieved very effective results. Blue Shield looks forward to further refinements and clarifications of specific policies through its liaison efforts with these various committees.

In the delicate area of utilization study and screening, Blue Shield has contributed to qualifying the principle that the medical profession must retain the leadership of utilization review activities. We have upheld the premise of local professional determination in questions of utilization. We have consistently resisted efforts which would have encouraged large scale third party determinations on utilization questions. We are convinced that, in the long run, the public interest will best be served through this approach, both from the standpoints of economics and quality care.

In respect to verification, my own personal feeling is that we must keep our house clean *ourselves* to best reassure the public and the various legislative bodies that our charges to the public are reasonable. Otherwise, I feel that we face some very untenable possibilities, in regard to fee regulation. This would include fees being set by printed fee schedule. We feel that the Kansas Medical Society and Blue Shield could accomplish both verification and utilization review much more effectively than any third party. We are going to ask you to pass a resolution to let us work with the Kansas Medical Society to study and implement methods of verification that will not only work efficiently but also in a positive fashion. We are also working very closely with the Society's Utilization Study Committee to develop coordinated, professionally directed programs in the area of utilization review.

In the field of legislative activities, Blue Shield fought hard, with a significant measure of success, in the recent session of the legislature. Legislation was introduced which would have reduced the voice of Medicine on the Blue Shield Board of Directors. While this is still an ongoing effort, we have succeeded in maintaining the majority voice of the physicians for the coming year. Blue Shield has also once again succeeded in preserving the traditional, tax-free status of the corporation, though—here again —the work is never really finished.

Summing up Blue Shield's performance in respect to its four broad tasks is almost as big a job as any of the individual goals themselves. I feel that our record of performance during the past year has reflected the interests of organized medicine in respect to every major issue that has arisen. I haven't spoken of the unfinished projects on which Blue Shield worked last year. The reason I did not is because these involved questions on which you, the Kansas Medical Society, must direct us. The list includes the question of Verification of Charges, Podiatry Participation, Prepaid Drugs, Deferred Compensation and Title XIX expansion. We have sought, and will continue to seek, the profession's advice and consent in all major policies.

The mutual cooperation of the Medical Society has

been invaluable. Dr. Gsell, Dr. McClure, Dr. Morgan, Oliver Ebel and Swede Swenson have always been available and given extremely good advice any time we have sought their help. Likewise, we feel we have kept the lines of communication open from Blue Shield; so that the Medical Society could turn to us for assistance any time they desired.

I have attended many National Blue Shield meetings. It is interesting to me that all the other Plans are still talking about programs that we have had in effect for the past two to three years. I can assure you that Kansas Blue Shield is one of the leaders and not one of the followers. Much of this is due to the cooperation we have with the Kansas Medical Society.

To sum up what I have said, it *has* been a big year. The problems were big, but the progress was bigger. All together, we handled over one million, three hundred thousand claims and paid out about 27 million dollars to physicians. Blue Shield worked hard to supplement the profession's struggle for the right kind of health care for the public.

We didn't win them all, "but we won the 'big ones.'"

—We grew in the private sector.

—We expanded our benefit scopes.

—We qualified Prevailing Charges as the method for operating every *major* governmental health care program.

—We undertook the responsibility to maintain public confidence in Blue Shield programs and the medical profession, and we developed ways to deliver the Blue Shield product in the manner expected.

I hope the physicians of Kansas agree that, in the past year, Blue Shield has fulfilled the role of "The Doctor's Plan" more than ever and that we have increased our service to both the public and the profession.

ROBERT K. PURVES, M.D., *President*

KaMPAC

In 1967, KaMPAC had a very successful year. We had a workshop last November 5, with over one hundred people in attendance. The workshop consisted of the techniques for working in successful campaigns. We heard from both Democratic and Republican professionals in the state.

Membership increase is the primary goal of the KaMPAC organization. Last year, we had a paid membership of 415. This year, our goal is in excess of 500. This is an election year; we need your support now as we wish to complete our membership drive before the primary in August. There is a booth near the registration and we would like you, who are members, to pick up your membership buttons, and those who are not members to become members and pick up their membership buttons.

I would like now to read some AMPAC facts and some KaMPAC facts.

We are going to be active in the forthcoming congressional campaign. We need your help and support. Will those who are not members please stop by the KaMPAC reservation booth where there are some attractive ladies who will help separate you from your dues.

I would like to take this opportunity to thank the members of the Board and Mr. Swenson for their activities.

NORTON L. FRANCIS, M.D., *Chairman*

The Executive Director

This will be brief to conserve your time, but also because several items I might have reported to you will be done by others.

It is a pleasure today to report to you my impressions of the condition of this Society. You understand instantly that mine is an individual opinion and may not coincide with that of some of you. However subjective this may be, I present it as my own personal best opinion.

The people in the office who work with me represent the finest team we have ever had. You are all acquainted with Mrs. Braun, who besides performing secretarial work does the bookkeeping; with Mrs. Rogers, who besides doing all the JOURNAL work gives about one-fourth of her time to the Society; with Mrs. White, who in addition to secretary work keeps the membership records. You are acquainted with them because all have been with us for a number of years.

This year a vacancy occurred and we were exceptionally fortunate to employ Mrs. June Stratton. Her presence has brought a beautiful spirit of harmony that is simply wonderful to work with.

These people are all capable. They are the most intensely loyal workers you will ever have and now they are a team all working together. I am very proud of them.

Swede is one year older and has progressed five years in knowledge and in value during this period. I cannot tell you of the pride I have in watching him work. His drive is exceptional and now for the first time the assistant secretary of your Society has assumed a truly full measure of responsibility. Swede does a great many things. He reports to me regularly. We consult on all problems. He keeps me fully advised of what he is doing but he has initiative and he takes full responsibility over the projects in which he is engaged. To give you one example from many I might select, Swede has completely made all the

arrangements for this meeting. The meals, the meeting rooms, the exhibits—everything. For the first time in the 22 years I have been with you, I have done nothing except to work on the business end of the meeting. It has been a wonderful experience. I am awfully proud of Swede, as I know you are also.

It is my honest opinion that your Society is today in a position of greater strength and security than perhaps at any time since I have been with you.

There have been episodes of crisis and regularly your president has risen to magnificence to defend Medicine.

This year, Dr. Gsell has risen magnificently to improve your situation. We had no life or death legislative struggle in spite of a few small flurries this year, so Dr. Gsell devoted his genius to another direction, which resulted in developing an era of progress this Society has not known in a long while.

He met again and again with many people on the Regional Medical Planning Program. He personally averted more than one crisis of which I am acquainted—but the value of his effort shows through the close relationship this Society has with this program. One example will be dramatically presented to you today. A project—a worthwhile program—was rejected by the RMP advisory commission, even though it had been approved by many other organizations—until the Kansas Medical Society approved it. So, today, you will receive a resolution asking your endorsement.

This sort of thing doesn't just happen. This is the result of long, patient, and effective effort. Dr. Gsell did this for you.

The same thing is true in Comprehensive Health Planning.

But, Dr. Gsell has gone beyond programs to work with people. It is his theory that whether you like them or not—whether you disagree with what they do or what they believe—you will never influence them or understand them until you meet with them.

This year, remarkable progress has been achieved through three meetings with optometrists. The fourth is scheduled for May 18. I went to the first expecting a half-hour battle and adjournment. After six hours of spirited discussion, all decided to meet again—and then again.

Dr. Gsell set this up—made it possible—and made it work.

He did the same with pharmacy. For the first time in a decade, we met with their board and reached some significant understandings which in the future will result in events much to our mutual benefit.

Dr. Gsell met with osteopaths and with chiropractors. In all of these sessions—and there were more—the nurses, for example—he spoke forthrightly, but with fairness. He listened to them and in the end—always—we came to a better understanding.

We have had many *great* presidents—none, I promise, has ever been greater than Dr. Gsell. The direction of his work has brought this Society a stature it has not had before. We have now removed the mantle of our aloofness and are working with others.

You will see the effect of Dr. Gsell's efforts in your behalf for a long while to come. You are much in his debt.

Dr. Morgan has been fully aware of this work—in fact, has participated in much of it. I know he intends to continue this program—and has already made plans for several new areas. A meeting will soon occur for the first time with engineers.

So, what do I think of the Society today?

It is the greatest medical organization in the world. I am tremendously proud to be associated with you.

OLIVER E. EBEL, *Executive Director*

The President

Mr. Speaker, President-elect Morgan, members of the House.

I welcome this opportunity to discuss with you this afternoon some of the activities and problems of the Society. As a president comes into office, he is the unhappy recipient of many problems, which have been carefully nourished by his predecessors. As the year goes along, if fortunate, some of these are resolved. Many are modified, and some of them flourish beautifully. Depending upon his catalytic proclivities, each president will spawn new problems, hopefully late in his administration, so that he can smilingly pass them on to his successor. On assuming office last year, I felt there were four areas which would require thought and attention during the year, namely, the relationships of the Society with the medical school, with Blue Cross-Blue Shield, with the State Board of Social Welfare, and with the State Board of Health. I will discuss these in more detail shortly.

This was rather a peculiar year in legislative activities, both at the national and state level. Fortunately for medicine, at the national level, there has been relatively little finalizing of legislation. However, some modifications of the Social Security laws were made which affected especially Title XVIII, but there was no basic change and most of the modifications had the acquiescence, if not the endorsement, of organized medicine. Whether this slowdown of new legislation is due to the fact that politicians and the administration have their eye on the fall elections or whether there is slowly a modification in congressional thinking, I cannot tell.

As you recall, we were concerned with various legislative proposals which were expected to come

up in our state legislature. Again, there was very little legislation of particular impact on medicine passed by our legislature. Several subjects are dormant and certainly will come up again in the next session.

One thing has been made crystal clear to me during the year, and that is that medicine now and in the foreseeable future will be practicing in the public eye. The eyes of government, consumers, the general public, the economists, and the social planners are penetratingly focused on all aspects of medicine. The days when a doctor could do as he wished in his office practice or in his hospital practice are over. Our professional situations will be reviewed. It is up to us to see that such review is done by our peers. Changes in the delivery of health care are inevitable. It is imperative that we in organized medicine focus our attention on these problems. We must continue a strong state medical society and develop even closer ties with a strong American Medical Association to insure that the changes are evolutionary—not revolutionary. United, we *can* influence the decisions which will affect our patients and ourselves.

Happily, our good communications with the medical school and its activities have continued. The medical manpower shortage has focused attention on the necessity for increased production of doctors, with possible modifications of medical training at the undergraduate and graduate level. Dr. Wolf and his faculty are very aware of these problems. Dr. Wolf outlines this very well in the lead article of the March issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY. You should read that article. Sometimes we feel we have solutions, without realizing the complexity of the whole problem. It is perfectly proper for us to express our ideas to the administration at the medical school if it is done in the spirit of trying to help them solve an almost impossible problem.

I am pleased with the care and thoroughness by which the regional medical programs are developing. Dr. Lewis and his staff are continuing their close liaison with the Society. They have been very careful to maintain their role as the advisor and catalyst of the program, and have gone out of their way to avoid any attempts to dictate the policies of local units over the state. This is a long range and long time project. They should be complimented in their careful approach.

It looked, at the start of the year, like there would be feverish activity in the field of comprehensive health planning. it has proceeded slowly. It is still so amorphous that it is difficult to pin down specific aspects. As Dr. Rouse, president of the AMA, states in an editorial in the April 8 issue of *JAMA* "Comprehensive health planning is very broad in scope, encompassing all health facilities, services, manpower, and the environmental, economic, social, and other conditions that affect the health of the population of an area. Comprehensive health planning will relate to planning outside the field of health, such as urban redevelopment, public housing, and land use." He concludes with this, "continuing, sincere, and cooperative leadership in health planning is the responsibility and privilege of every physician and every organization." Dr. Hugh Dierker, secretary of the State Board of Health, and Dr. Tom Taylor, chairman of the Governor's Advisory Committee, have attempted to keep our liaison committee informed of the status of the program. In the years ahead, this program will assume greater importance. It was significant that the speech delivered for Dr. Philip Lee at the recent socio-economic conference held by the AMA in Chicago was devoted almost exclusively to the broad discussion of the future role of comprehensive health planning.

Our good relationships with the Social Welfare Board and the Title XIX program have continued. The year demonstrated the wisdom of the Society in setting up our liaison committee, headed by Dr. McClure. This committee is right on top of the Title XIX developments. Again was demonstrated the wisdom of our insistence on a medical coordinator in the Department of Welfare. Dr. Pyle is doing a yeoman's job, traveling all over this state explaining the program at the Council meetings. He has met on every occasion with our liaison committee and he has met with other committees of the Society. There have been problems and there will be problems, but we do have the mechanism to work them out. As we have met on numerous occasions during the year over the country with other organizations, we are convinced that the Title XIX program in Kansas has no equal.

Blue Shield has a tough job. The development of the prevailing fee concept, the added tasks as fiscal agent for Title XVIII and Title XIX have strained its abilities. Slowly these are being worked out. I have heard some criticism of Blue Shield during the year. In that regard, there are two things I do want to say; one is that the Board of Directors of Blue Shield and its Executive Committee are dominated by doctors who are members of the Kansas Medical Society and who have the same practice problems as you and I. They spend a lot of time trying to work out the policies of Blue Shield in conformity with the wishes and desires of the doctors of Kansas. Secondly, Blue Shield has not, and I am assured will not, change policies or adopt new policies that do not have the endorsement of the Kansas Medical Society. We are fortunate to have such a close relationship and it is imperative that we continue this close relationship. You are to consider at this session

several propositions relating to Blue Shield. First, the possible adoption of an agreement between Kansas Blue Shield and KMS on policies of the Prevailing Charge Plan. Second, the thorny problem of verification of charges. The verification question has been widely discussed over the state and there has been ample opportunity for every member of the Society to become informed. As your president, I feel it is proper to discuss with you some aspects of this problem. The concept of usual and customary fees is a good one and protects both our patients and the doctors. It is a privilege for us. Along with this privilege is a corollary of our responsibility to assure third party providers that the fees we charge are in fact our usual and customary fees. In your packets is a reprint of an article by Dr. George W. Petznick, past president of the Ohio Medical Association and present member of the AMA Judicial Council. This is entitled "Medical Ethics and Reasonable Fees." You should read it once and then read it again. He defines ethics and shows the relationship to reasonable fees. He builds a very strong case for the absolute necessity for organized medicine to establish verification.

Now, third parties and the public expect to pay a fair price for physician's services. They accepted the usual and customary concept only because we advised them this was the way in which they could pay exactly what the remainder of the population pay. Neither third parties or consumers have any inherent interest in the concept. They can achieve the same result, with better predictability, through the use of fee schedules, where one doctor is paid more and one less than his usual fee.

So if the usual and customary concept is maintained, it will be because physicians establish its validity.

Verification is not a new procedure. When we filed our fees with Blue Shield, the program started. Various committees at the county and state level have functioned for a long time to assure the public of value received for its health care expenditures. You and I know that the vast majority of us are cooperating to preserve usual fee for all our physicians. If some are not, they will soon be discovered and they can be controlled.

The question is what refinements can we add to verification techniques? What must we do to answer consumer demands? How much will we pay to preserve this payment concept? If we can resolve all of these questions at this meeting, it will be something. This does not need to be a crash program. It might be wise for this House to authorize the commission on socio-economic study, the Blue Shield relations committee, and the Blue Shield executive committee to continue in their efforts toward improving the methods of verification. Several resolutions have been presented for your consideration, and I am confident that you will reach a conclusion which is satisfactory to the many members who have given a lot of thought and discussion to this very pertinent problem.

Your commissions have worked well this year. Their committees have worked long and hard. This is evident by the great number of resolutions which are before you for consideration. The Society is indebted to the many men who give during the year their time, thought and money for the betterment of medicine.

No report of mine can be complete without reference to the executive office. In the first place, it is efficient. I could spend considerable time detailing this for you. Secondly, there is an atmosphere which succeeds in making the presidential duty pleasant. My thanks go to our permanent staff of Mrs. Val Braun, Mrs. Velma White, Mrs. Mary Rogers and Mrs. June Stratton for their constant help and kindness. Swede Swenson is doing a good job. As you know, he and Oliver divide the committee assignments. Swede has worked long and hard on the arrangements for this meeting to make it one of the best ever. I want to thank you, Sweede, for all of your help during the year. Finally there is the "Silver Grey" Oliver. I don't need to tell this Society of his abilities. Earlier, I noted that there was little legislation passed in our state legislature. Much of this just didn't happen. It resulted because of the confidence of the legislature in his insight and trustworthiness. As a non-lobbyist, he has no peer. Through long association with him, I have observed his one guiding principle and this is a complete devotion to the best interests of the Kansas Medical Society.

Gentlemen, I wish all of you could serve a year as president. It is a rewarding experience. Tomorrow and Wednesday, we tackle many problems. I hope we can solve most of them so that John Morgan starts off with only his fair share.

GEORGE F. GSELL, M.D., *President*

SECOND SESSION

The second session of the House of Delegates convened at the at Ramada Inn, Topeka, on Wednesday, May 1, 1968 at 9:30 a.m.

Dr. Thomas F. Taylor, Speaker, called the session to order and ballots were distributed for the election of officers, speaker and vice speaker and nominating committee.

The tellers reported the results of the election as follows:

PRESIDENT-ELECT: Leland N. Speer, Kansas City

First Vice President: Francis T. Collins, Topeka
Second Vice President: William J. Reals, Wichita
Secretary: Emerson D. Yoder, Denton
Treasurer: Chester M. Lessenden, Jr., Topeka
AMA Delegate: Lucien R. Pyle, Topeka
Alternate AMA Delegate: J. Warren Manley, Kansas City
Speaker: Thomas F. Taylor, Salina
Vice Speaker: Clair C. Conard, Dodge City

The caucus of the Council districts announced the selection of the following to serve as councilors and alternates from their respective districts:

District 6: Chester M. Lessenden, Jr., Topeka, Councilor; Richard H. Greer, Topeka, Alternate

District 7: Richard F. Conard, Emporia, Councilor; Leo F. McKee, Cottonwood Falls, Alternate

District 10: Ralph R. Melton, Marion, Councilor; Richard Glover, Newton, Alternate; John N. Blank, Hutchinson, Alternate; Robert W. Sohlberg, McPherson, Alternate

District 12: Frederick P. Wolff, Pratt, Councilor; J. Warren Jacks, Pratt, Alternate

District 16: James J. Marchbanks, Oakley, Councilor; Robert C. Long, Norton, Alternate

District 18: Robert W. Hughes, Lawrence, Councilor; David G. Laury, Ottawa, Alternate

The results of the election of the Nominating Committee are as follows: George E. Burket, Jr., Kingman, and James A. McClure, Topeka, Co-chairmen; Murray C. Eddy, Hays; Glen R. Peters, Kansas City; and H. St. Clair O'Donnell, Ellsworth.

RESOLUTION NO. 1

Guideline for Joint Policy Statement on Nursing Service

Be It Resolved. That the following statement be adopted.

Introduction

Efficient and effective health care of people in our present society of fast changing advances in the social and physical sciences, calls for a mutual concern on the part of doctors, hospitals, and nurses. In Kansas this concern has been alive for several years.

Representatives of the Kansas Hospital Association, the Kansas Medical Society, and the Kansas State Nurses' Association have met on several occasions to discuss matters concerned with the quality of patient care. Although these meetings have been held informally and infrequently for several years, a need for a Liaison Committee has been seen. On July 21, 1966, such a committee was formed and held its first meeting at the KSNA office in Topeka, Kansas.

Foreword

Medicine and nursing are two separately recognized professions by law. The distinction between medical and nursing practice as described in the statutes in the abstract appears quite clear; yet the precise lines between the two areas of practice, when specific procedures are considered, are not easy to find.

A few decades ago there would have been very little overlapping in medical and nursing functions. Today the definitive characteristics are not so evident. In some instances, nurses have no question about proper action; in other gray areas, however, they need to know that they are carrying out proper dependent nursing functions and that they have the support of medical and nursing authority.

Problems of practice within the dependent area of nursing functions are best approached by joint study by the professions involved.

Concern for the health and well being of patients is an ethical responsibility which the nurse shares with the doctor and the hospital or other agency. To assume this responsibility and to insure that the highest standards of patient care are maintained, the following material has been developed to serve as a guideline.

Legal Aspects

Certain factors can be defined without question and are self evident. By way of example, without attempting to be complete, are the following:

1. Kansas Statutes Annotated 65-2869. Classes or persons deemed engaged in practice of medicine or surgery:

a. Persons who publicly profess to be physicians or surgeons, or publicly profess to assume the duties incident to the practice of medicine or surgery or any of their branches.

b. Persons who prescribe, recommend or furnish medicine or drugs, or perform any surgical operation of whatever nature by the use of any surgical instrument, procedure, equipment, or mechanical device for the diagnosis, cure or relief of any wounds, fractures, bodily injury, infirmity, disease or illness of human beings.

c. Persons who attach to their name the title M.D., surgeon, physician, physician and surgeon, or any other word or abbreviation indicating that they are engaged in the treatment and diagnosis of ailments, diseases, or injuries of human beings.

2. Kansas Statutes Annotated 65-2872. Classes or persons not engaged in the practice of the healing arts:

a. Persons rendering gratuitous services in the case of an emergency . . .

b. Persons whose professional services are performed under the supervision or by order of or referral from a practitioner who is licensed under this act . . .

c. Nurses practicing their profession when licensed and practicing under and in accordance with the pro-

visions of Article 11 of Chapter 65 of the General Statutes of 1949, or amendments thereto, and any interpretation thereof by the supreme court of this state. . . .

3. Kansas Statutes Annotated 65-1113.

Definitions. When used in this act:

a. "Board" means the board of nursing.

b. "Practice of nursing." (1) The practice of professional nursing means the performance for compensation or gratuitously, except as permitted by section 65-1124 of the General Statutes of 1949, as amended, of any act in the observation, care, and counsel of the ill, injured, or infirm, or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or the administration of medications and treatment as prescribed by a licensed physician or dentist; requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical, and social science. The foregoing shall not be deemed to include acts of diagnosis or prescription of therapeutic or corrective measures. (2) The practice of practical nursing means the performance for compensation or gratuitously except as permitted by section 65-1124 of the General Statutes of 1949, as amended, of such duties as are required in the care of the ill, injured or infirm under orders as prescribed by a licensed physician or licensed dentist or directions issued by a registered professional nurse, the performance of which requires a knowledge of simple nursing procedures but not requiring the professional knowledge, judgment and skills required for professional nursing.

c. A "professional nurse" means a person who practices professional nursing as defined in paragraph (b) (1) of this section.

d. A "practical nurse" means a person who practices practical nursing as defined in paragraph (b) (2) of this section.

Legally, the registered professional nurses must function in accordance with this Kansas statute.

4. Nurses, although acting upon the prescribed direction of a licensed physician, are nevertheless responsible for their acts in the performance of their professional duties.

5. The nurses are aware of their obligation to themselves, to their profession, to the physician under whose direction they work and to the patient they serve, not to attempt the performance of any professional care which is beyond their skill or understanding.

6. It is the ethical duty of nurses, when directed by a physician to perform a service which is believed to be beyond their skill or understanding, to notify their supervisor or employer. This should be interpreted to mean that a nurse who in conscience feels she cannot perform the service has the right and duty to refuse to do so.

7. The in-service training program is responsible for the additional preparation for unusual or specialized procedures.

State Nursing Liaison Committee

The Joint Committee recommends to its respective organizations that a committee be organized on which shall serve three representatives from each of three organizations and that this committee be given the following charges:

1. To develop and publish appropriate statements of policy designed to assist in the determination of the respective professional responsibilities in patient care and treatment.

2. To encourage organization of a local committee in each health care facility in Kansas to develop statements of policy specifically tailored to the local personnel, facilities and needs for patient care and treatment.

3. To assist local nursing liaison committees in the development of their local statements of policy.

4. To serve as a state-wide co-ordinating and consultant body to the local committees.

5. To recommend to the sponsoring associations amendments to or revisions of these guidelines whenever needed.

Local Nursing Liaison Committees

It is recommended that the local committee of a health care facility have representatives of the professional staff, the department of nursing, the department of nursing education, if any, the administrative staff, and the representatives of those responsible for the in-service training program.

Further, it is recommended that in developing its written policy statement, the local committee take into consideration the following conditions:

1. Specific procedures to be performed by the nurse upon order of a licensed physician or dentist for specific patients.

2. The nurse have competent instruction and training in the procedures to be performed.

3. Competence of a nurse to perform such procedures to be determined by the nursing service department of the facility.

4. The nurse to be trained for giving emergency first aid when required due to the non-availability of a licensed physician or dentist.

5. The local committee not to exercise decision-making powers but to make recommendations for consideration by the appropriate governing authority.

RESOLUTION NO. 2

Nurse Education

WHEREAS, The American Medical Association is

on record to "continue its support of all current nationally approved educational programs for nurses"; and

WHEREAS, The national trend which is supported by the professional nurses' associations appears to be gradual phasing out of the diploma schools of nursing and the transfer of nursing education to collegiate institutions; and

WHEREAS, Seventy (70) per cent of nursing care at the present time is rendered by graduates of diploma schools with the demand for such nurses continuing to exceed the supply; and

WHEREAS, There is general professional agreement on the need for inclusion of nursing education in community health planning with provision for greater use of in-hospital training as well as training in collegiate institutions; therefore be it

Resolved, That the Kansas Medical Society reaffirm its support of all forms of nursing education including baccalaureate, diploma, associate, and practical nurse education programs; and be it further

Resolved, That those hospitals that conduct diploma schools of nursing be commended for the great contribution being made by these institutions to the health needs of the nation; and be it further

Resolved, That such hospitals be urged to continue their schools and increase enrollment while allowing the individual to choose the kind of nursing education he or she desires.

RESOLUTION NO. 3

Handicapped Children

WHEREAS, The State of Kansas has a tax funded medical program, the Kansas Crippled Children's Commission, that is responsible for rehabilitation to selected children afflicted with a hare lip, cleft palate, congenital cataract or with congenital or acquired cardiac defects, which can be corrected or materially improved by surgery, or an orthopedic condition or deformity that can be cured or materially improved. The orthopedic condition or deformity referred to above shall include any deformity or disease of childhood generally recognized by orthopedists and by the medical profession as falling within the field of the orthopedic surgeon, and it shall include infantile paralysis and deformities resulting from burns. It shall not include recent fractures. This excludes other children of Kansas that may not have one of the aforementioned defects but have an equal or more severe disability; and

WHEREAS, This program is administered by an appointed body that acts with medical direction, supervision, council and formulation; therefore be it

Resolved, That the president of the Kansas Medical Society recommend to the governor of the State of Kansas that:

1. The medical director be encouraged to initiate, co-ordinate, and supervise appropriate programs for the benefit of handicapped children.
2. An advisory council to the medical director be established, this council to consist of appropriate resource physicians, including representatives of the Kansas Medical Society, whose function would be to supply the director with information and advice.
3. That thoughtful consideration be given to the methods of determination of eligibility for care.
4. That the Kansas Crippled Children's Commission add to its program other conditions.
5. That the medical director continue to be on a part-time basis until such time as the program be expanded to require the services of a full-time director.

RESOLUTION NO. 4

Abortions

Be It Enacted by the State of Kansas that any person or persons other than a physician licensed to practice medicine and surgery in the State of Kansas and within a licensed and accredited hospital who terminates a pregnancy of another otherwise than by live birth shall be deemed guilty of manslaughter in the second degree.

RESOLUTION NO. 5

Citizenship

Be It Resolved, That the Board of Healing Arts be requested to grant temporary and restricted license to any physician of foreign citizenship, who may be otherwise fully qualified by examination to practice medicine and surgery, to practice where a public need may be deemed to exist. Such license shall be renewable annually at the discretion of the Board of Healing Arts for a period of not more than five (5) years.

RESOLUTION NO. 6

Verification of Professional Charges

Combined with Resolution No. 51, therefore this resolution was not adopted.

RESOLUTION NO. 7

Voluntary Community Health Planning

Purpose of resolution included in Resolution No. 19, therefore this resolution was not adopted.

RESOLUTION NO. 8

Memorial Fund

Similar to Resolution No. 12. Therefore this resolution was not adopted.

RESOLUTION NO. 9

Essay Contest for Medical Students

This resolution was not adopted.

RESOLUTION NO. 10

History Essay Prize

This resolution was not adopted.

RESOLUTION NO. 11

Regional Medical Programs

WHEREAS, The University of Kansas School of Medicine has been designated the fiscal agency for the Regional Medical Program; and

WHEREAS, A number of communities have applied for grants with which to participate in such programs; and

WHEREAS, The Medical Center encourages other areas to develop projects under the Regional Medical Planning concept; therefore be it

Resolved, That the Kansas Medical Society endorse the continuation of Regional Medical Planning in Kansas because it is medically oriented and is one of the rare federally sponsored programs that leaves the initiative to the medical profession at the local level; and be it further

Resolved, That the Committee on Regional Medical Programs continue to serve this Society as a liaison between the Medical Center and the practicing physician.

RESOLUTION NO. 12

Kansas Medical Society Student Loan Fund

WHEREAS, Many members and friends of the Kansas Medical Society would wish to contribute to a memorial fund; and

WHEREAS, Many potential memorial offerings are lost for lack of a standing mechanism to receive such funds; and

WHEREAS, Many members and friends of the Kansas Medical Society would prefer that such memorials be for the aid of future members of the medical profession; therefore be it

Resolved, That the Kansas Medical Society establish a Memorial Student Loan Fund at the University of Kansas School of Medicine to which contributions may be made and which will offer an annual accounting to the Kansas Medical Society; and be it further

Resolved, That the Executive Director notify the family of the deceased of contributions made in his behalf; and be it further

Resolved, That the JOURNAL OF THE KANSAS MEDICAL SOCIETY annually publicize the Memorial Student Loan Fund by publishing an activity report.

RESOLUTION NO. 13

Health Education in Kansas

WHEREAS, The quantity and quality of health education in the schools of Kansas varies, and

WHEREAS, This state offers no specified curriculum in these subjects as a requirement for graduation; therefore be it

Resolved, That the Kansas Medical Society recommend that the State of Kansas require, in addition to physical education requirements, that a specified number of units in health education be completed each year from the first grade through the twelfth to include knowledge about human body systems including the reproductive system and mental health and such other health information as may be appropriate to the end that citizens can take more informed and responsible action in decision-making about their own health;

That courses in physical education and participation in competitive sports may not satisfy the requirement; and be it further

Resolved, That the Kansas Medical Society recommend that the state assign to the appropriate colleges or universities the charge to offer a health education curriculum to the Ph.D. level; and be it further

Resolved, That the Kansas Medical Society recommend that the state recognize the fields of physical education, counseling, and health education as separate disciplines by offering separate courses and distinguishable degrees at the graduate level in each field; and be it further

Resolved, That the Kansas Medical Society recom-

mend that the state offer special inducements to students in health education through scholarships, reduced tuition or other means to accelerate this program and more rapidly provide the schools of Kansas with health educators; and be it further

Resolved, That the Kansas Medical Society authorize the Committee on School Health, together with the School Health Council, the P.T.A., and with whatever individuals or organizations appear to be appropriate, to

1. Recommend hours of study in physical education and hours of study in health education required each year.

2. Prepare information upon the educational requirements for a Bachelor's, a Master's, and a Ph.D. degree in physical education, in counseling, and in health education.

3. Enlist the services of the medical profession, local boards of education, school administrators, and the public generally to obtain whatever legislation may be required to educate an adequate number of health educators for Kansas schools and to bring every student a standard continuing instruction in health; and be it further

Resolved, That a copy of this resolution be forwarded to the Council on Education of the American Medical Association.

RESOLUTION NO. 14

Medical Curriculum

WHEREAS, There is an acute shortage of all medical personnel both in the state and nationally; and

WHEREAS, Both the American Medical Association and the Association of American Medical Colleges have recommended that the education of medical personnel be greatly accelerated; and

WHEREAS, Leading educators, as a means of preventing duplication, have advised that medical schools give credit for advanced work done in college; and

WHEREAS, Advanced credit would attract better students into Medicine, reduce the high attrition rate of the first two years of Medicine, create an in-state reservoir of replacements for the second and third year classes, and facilitate vertical mobility of the allied health fields; therefore be it

Resolved, That the Kansas Medical Society recommend to the University of Kansas School of Medicine that they give credit for advanced courses done in the state universities, and that as soon as courses can become standardized that this policy be extended to the state colleges; and be it further

Resolved, That a copy be submitted to the Council on Education of the American Medical Association.

RESOLUTION NO. 15

Highway Patrol Service

WHEREAS, The State Highway Patrolman is generally the first to arrive at the scene of a highway accident; and

WHEREAS, It would be helpful if this patrol car could be equipped with certain necessary emergency care equipment; and

WHEREAS, It would be most helpful if this car were to be a station wagon that could be used for an emergency ambulance at that time; therefore, be it

Resolved, That the Kansas Medical Society, through its Committees on Rural Health, Safety, and Emergency Medical Care, explore the possibility of the State Highway Patrol personnel being thoroughly trained in emergency care and that such equipment be furnished to them for the immediate care and transportation of those injured in highway accidents.

RESOLUTION NO. 16

Nursing Home Call List

This resolution was not adopted.

RESOLUTION NO. 17

Dietetic Manual

This resolution was not adopted.

RESOLUTION NO. 18

Forum on Solo Practice

Resolved, That the American Medical Association delegates from Kansas be directed to present a resolution to the A.M.A. directing the Board of Trustees of the American Medical Association to set up a forum on solo practice of medicine.

RESOLUTION NO. 19

Comprehensive Health Planning

WHEREAS, The Kansas Medical Society has previously endorsed the Legislative selection of the State Board of Health as the Planning Agency for Comprehensive Health Planning in Kansas; and

WHEREAS, The State Board of Health has indicated a continuing interest in providing information to and eliciting cooperation from the members of the Kansas Medical Society; therefore be it

Resolved, The Kansas Medical Society re-affirms

its endorsement of the Legislative selection of the Kansas State Board of Health, as presently constituted, as the Planning Agency for Comprehensive Health Care in Kansas.

RESOLUTION NO. 20

PL 89-749

WHEREAS, Public Law 89-749 and its various amendments, designated as Comprehensive Health Planning, is in process of implementation in Kansas; and

WHEREAS, The implementation of this law will affect all aspects of health care in all sections of the state; and

WHEREAS, The State Planning Council of Kansas and the State Board of Health, which is the Planning Agency in Kansas, have manifested every inclination to involve cooperative effort of the medical profession of Kansas in this program; therefore be it

Resolved, That

1. The Kansas Medical Society urges its members to become informed and assume responsibility in Comprehensive Health Planning at all levels in Kansas, but particularly at the area-wide and community level.

2. The Kansas Medical Society will make every effort to keep the membership informed of the current status of Comprehensive Health Planning in Kansas.

3. The Kansas Medical Society will cooperate with and assist in every way possible the State Planning Council and the State Board of Health in the program of Comprehensive Health Planning in Kansas.

RESOLUTION NO. 21

Fifty-Bed Natural Disaster Hospital Units

This resolution was not adopted.

RESOLUTION NO. 22

Hospital Emergency Care

WHEREAS, The annual loss of life and injured in the United States from accidental injuries during 1967 was 112,000 killed and 10,700,000 injured; and

WHEREAS, In Kansas during 1967, 1,338 persons were killed and 128,000 injured; and

WHEREAS, In Kansas during 1967, 682 were killed on our highways and 24,000 injured; and

WHEREAS, The leading cause of death and crippling injury to the youth of our state is the automobile accident; and

WHEREAS, The major portion of such victims are transported to hospitals and cared for in the emergency rooms; therefore be it

Resolved, That the Kansas Medical Society urge medical staffs of Kansas hospitals to review the emergency services, to up-date it, and be prepared to render a high level of service at maximum efficiency. This would include the emergency room, hospital personnel, medical personnel and standards for their community ambulance services.

RESOLUTION NO. 23

Emergency Medical Care Committee Chairmen

WHEREAS, The mobilization and coordination of medical and hospital services at the time of a local or state-wide disaster constitutes a most important problem; and

WHEREAS, Any community at the time of a disaster and unable to meet the burden of medical and hospital needs may request such help from surrounding areas; and

WHEREAS, Such requests can most effectively be made and responded to by physicians through organized effort; therefore be it

Resolved, That the Kansas Medical Society request local societies to furnish annually the name of the chairman of the Emergency Care Committee responsible for organization, mobilization and coordination of medical and hospital personnel of their community; and be it further

Resolved, That these names with addresses and phone numbers be listed in each printing of the JOURNAL.

RESOLUTION NO. 24

Physicians on Hospital Boards of Trustees

Similar in content to Resolution No. 48; therefore, this resolution was not adopted.

RESOLUTION NO. 25

Liaison Between Associations

This resolution was not adopted.

RESOLUTION NO. 26

Ambulance Service and Training Programs

WHEREAS, There is a definite need for ambulance service in rural Kansas; and

WHEREAS, Regulations are necessary in order to maintain standards of ambulance and emergency medical care services; therefore be it

Resolved, That the Kansas Medical Society go on record as doing everything in its power to upgrade ambulance service; however, feeling that an immediate and strict enforcement of a model ambulance ordinance would result in no ambulance service in many communities; and be it further

Resolved, That we encourage county medical societies to take an active part in establishing educational programs in training of paramedical personnel in emergency medical care; and be it further

Resolved, That all persons involved in emergency care training programs be made cognizant of the *Immediate Care of the Sick and Injured* book published by the Kansas Medical Society and available through the Sedgwick County Medical Society.

RESOLUTION NO. 27

Hospital Regulations

WHEREAS, *Hospital Regulations,* 4th edition (1958) of the Kansas State Board of Health makes no provision for operation of psychiatric units in other than a closed ward manner; and

WHEREAS, Such regulations make operation of an "open ward" psychiatric unit a situation open to possible lawsuit in event of patient injury; then be it

Resolved, That the Kansas Medical Society urge revision of *Hospital Regulations* by the State Board of Health in these matters of open and closed ward psychiatric units, to protect the operation of effective therapeutic programs.

RESOLUTION NO. 28

Establishment of Criteria of Operating Room Technicians

Be It Resolved, That the Kansas Medical Society encourage the Kansas Chapter of the American College of Surgeons to establish criteria for the training of operating room technicians.

RESOLUTION NO. 29

The Journal

WHEREAS, The JOURNAL OF THE KANSAS MEDICAL SOCIETY is the official publication of this Society; and

WHEREAS, The JOURNAL provides the membership with a medium through which they may publish original scientific articles; and

WHEREAS, The JOURNAL carries announcements and items of interest to the members of this Society; and

WHEREAS, The Kansas Medical Society takes pride in the contents and in the format of the JOURNAL; therefore be it

Resolved, That the House of Delegates express its gratitude to Orville R. Clark, M.D., Editor, and to the members of the Editorial Board for the great service they continually render this Society in the preparation of this JOURNAL; and be it further

Resolved, That the House of Delegates authorize the expenditure of such funds as may be necessary to preserve the present format of the JOURNAL and to continue its publication.

RESOLUTION NO. 30

Membership

This resolution was not adopted.

RESOLUTION NO. 31

Resolutions

This resolution was not adopted.

RESOLUTION NO. 32

The Executive Committee

Be It Resolved, That the By-Laws be amended in Section 8:15 by deleting the word "and" after the word "Secretary," and adding after the word "Treasurer" the words "and the Delegates to the American Medical Association."

RESOLUTION NO. 33

Publication of Constitution and By-Laws

WHEREAS, Amendments to the Constitution or By-Laws adopted by the House of Delegates subsequent to printing of such document rapidly leaves the printed document out of date and inaccurate; therefore be it

Resolved, That the Constitution and By-Laws be published in loose-leaf form whereby amendments can be inserted to give delegates access to correct copies.

RESOLUTION NO. 34

Contributions by the Society

WHEREAS, Numerous worth-while health oriented organizations request contributions of money from the Kansas Medical Society; and

WHEREAS, Such requests are considered by the Council on their individual merit but without an over-all Society policy in this regard; therefore be it

Resolved, That the total of all contributions given by the Society in any one year shall not exceed $4,000 and that not more than 20 per cent of this total be contributed in any one year to a single organization.

RESOLUTION NO. 35

State Meeting Improvement

WHEREAS, The needs for all-encompassing physical facilities are apparent for the purpose of the Kansas Medical Society to hold the annual meeting; therefore be it

Resolved, That the Kansas Medical Society hold its annual meeting in Topeka 1968, in Salina 1969, in Wichita 1970, and in Kansas City in 1971; and be it further

Resolved, That until other cities develop such all-encompassing facilities that this Society's annual meeting be limited to the schedule as outlined.

RESOLUTION NO. 36

Cultists

Be It Resolved, That the Kansas Medical Society express to national and state legislators, to government executive officials and to officials of public agencies in the health care field its deep dismay and disillusionment over the inclusion of cultists with no recognizable standards or established merit in treatment of human illness in publicly supported health care programs; and be it further

Resolved, That the Kansas Medical Society feels this can have no other result than deterioration of health care and inflation of its cost.

RESOLUTION NO. 37

Retirement Program

Be It Resolved, That the House of Delegates authorize the Commission on Sociology and Economics to continue to organize a voluntary tax exempt retirement program under the auspices of the Kansas Medical Society.

RESOLUTION NO. 38

Fee Verification

Resolutions pertaining to verification were combined into one resolution. Therefore, this resolution was not adopted.

RESOLUTION NO. 39

(The motion was made and carried that the last sentence of paragraph 3, page 3 of the Guidelines be deleted. Resolution No. 39 was adopted, including the amendment to the Guidelines.)

Guidelines for Title XIX

Be It Resolved, That the Guidelines of the Advisory Committee to Welfare be approved by the House of Delegates as submitted.

RESOLUTION NO. 40

(Adopted at First House of Delegates)

Advisory Committee to Welfare

WHEREAS, The Advisory Committee to Welfare has held an exceptional number of meetings and has performed a great service to the Kansas Medical Society; therefore be it

Resolved, That the House of Delegates express its thanks to James A. McClure, M.D., Chairman, and to the members of this Committee.

RESOLUTION NO. 41

Medical-Legal Conference

WHEREAS, The First Kansas Medical-Legal Conference was both well attended and well received; therefore be it

Resolved, That the House of Delegates express its compliments to Henry O. Marsh, M.D., Chairman, and to the members of his Committee on Relations with the Bar Association on the excellence of the program presented in the Medical-Legal Conference held in Topeka, February 29, 1968; and be it further

Resolved, That future medical-legal conferences shall be held every other year.

RESOLUTION NO. 42

Kansas Relative Value Studies

WHEREAS, Experience has indicated the need for

certain revisions in the Kansas Relative Value Studies; and

WHEREAS, There is an expressed need for the inclusion of additional identification numbers and procedure descriptions; therefore be it

Resolved, That the Kansas Society of Pathologists and the Kansas Radiological Society supply information regarding the professional components for hospital-based procedures; and be it further

Resolved, That the assistance of the specialty organizations, including the Academy of General Practice, be enlisted to revise the entire Relative Value Studies as needed.

RESOLUTION NO. 43

Customary Fees and Commercial Insurance

WHEREAS, The Kansas Medical Society has previously expressed its preference for the payment of usual and customary fees by third parties in place of fee schedules; and

WHEREAS, The great majority of Kansas physicians have filed their usual and customary fees with Blue Shield; and

WHEREAS, Blue Shield is currently paying physicians their usual and customary charges under community range maximum; and

WHEREAS, Commercial insurance companies participating in the Kansas Health Insurance Council have expressed a desire to pay usual and customary fees to physicians; therefore be it

Resolved, That the Kansas Health Insurance Council be offered usual and customary contracts subject to the usual review procedures.

RESOLUTION NO. 44

Ethics Relating to Charging Principles

PREAMBLE: The Kansas Medical Society recommends to all third parties who provide reimbursement to persons for all or part of the cost of professional medical service that payment shall be based upon the physician's charges, provided they do not exceed the community range maximum as may be established under a mutually agreed upon formula which formula is subject to periodic review.

Recognizing that health services are essential and that their cost is sometimes not clearly understood by the patient, the Kansas Medical Society is pledged to the principle that physicians shall:

1. Provide their patients all possible economy in health care consistent with scientific practice,
2. Guard equally against under and over utilization of services,
3. Practice in keeping with the standards of physicians in the area,
4. Encourage patients to freely discuss fees with their doctor, preferably before the service is rendered.

The Kansas Medical Society declares that, subject to exceptions listed in the section to follow, the cost of medical services rendered a patient whose health care is paid for, all or in part by a third party, will be no higher than the charges made by the same physician for similar service to comparable patients who pay their own bill.

BE IT UNDERSTOOD THAT:

1. The physician shall establish the value of the professional service he renders his patient. If the patient agrees to the fee and accepts responsibility for payment, and if the physician looks to the patient (or his family) only, for payment, then the physician's charge is not subject to consideration as a question of ethics.
2. The physician who looks to a third party for payment of a medical service will accept such reimbursement as payment in full when the third party assumes:
   a. the total cost of the patient's covered medical care at reasonable, usual and customary charges,
   b. the remainder of reasonable, usual and customary charges in full except for a stipulated deductible to be paid by the patient,
3. In other circumstances involving third party payments, even when the physician accepts an assignment, the charge for professional services is determined by agreement between the physician and his patient. The third party, if concerned at all, will negotiate with the patient.
4. The Kansas Medical Society makes available to the physician, the patient or the third party, professional review and grievance committees at the component society, the Council district and the state level to make recommendations on specific instances where:
   a. fees above the reasonable, usual and customary are requested in exceptional instances where more than usual professional care was required,
   b. an individual charge or payment is challenged as deviating from the concept of reasonable, usual and customary,
   c. where the relationship between the service rendered and the fee charged or allowed is questioned,
   d. the professional service is under question as to eligibility for payment or whether its performance was in keeping with community standards.

Be It Resolved, That the principles of medical ethics of the Kansas Medical Society are those adopted by the American Medical Association and this statement upon charging principles.

RESOLUTION NO. 45

Political Action Committee

WHEREAS, The Kansas Medical Society, each year, has endorsed and given its support to AMPAC; and

WHEREAS, KaMPAC in Kansas, with AMPAC support, has become one of the strong state medical political action committees; and

WHEREAS, Continued support and growth of KaMPAC is essential to their continued success; therefore be it

Resolved, That this House of Delegates of the Kansas Medical Society reaffirm its support of AMPAC and its Board of Directors and urge the KaMPAC Board to strengthen its effort in pursuit of additional memberships in order to strengthen their political education and action activities; and be it further

Resolved, That the Council of the Kansas Medical Society be commended for its development and continued support of KaMPAC and medical political action in general; and be it further

Resolved, That the House of Delegates of the Kansas Medical Society request its House of Delegates and Council to take immediate action to explore additional ways of increasing and strengthening its support of KaMPAC to the end that KaMPAC may be permitted an opportunity to enlarge its vital activities and its assistance in preparation for the 1968 elections.

RESOLUTION NO. 46

Compulsory AMA Membership

This resolution was not adopted.

RESOLUTION NO. 47

Past Presidents on Council

This resolution was not adopted.

RESOLUTION NO. 48

Physicians on Hospital Boards

WHEREAS, There is an increasing amount of pressure being placed on health by the United States Government; and

WHEREAS, It has been the policy of the hospital organization to disallow physicians as voting members of their boards; and

WHEREAS, The physicians of Kansas have long taken an active part in the hospitals of Kansas; and

WHEREAS, The AMA, through its House of Delegates, passed a resolution stating that every hospital board should have a physician as a full voting member of the board; and

WHEREAS, The AMA, as a result of this resolution, has urged the Joint Committee on Accreditation of Hospitals to implement this resolution; and

WHEREAS, The physician shall not be employed by the board that has as its subordinate any hospital involved with the board; and

WHEREAS, The physician be elected by the members of the hospital staff for a term not to exceed three years; and

WHEREAS, This would improve the care of patients in the hospital; therefore be it

Resolved, That the Kansas Medical Society urge the State Board of Health to adopt as one of its qualifications for licensure of hospitals in Kansas that every hospital board have a qualified physician of its medical staff as a full voting member of that board, where not in conflict with state law; and be it further

Resolved, That the 1969 Kansas Legislature be requested to amend such existing Statutes as now exclude physicians from service on hospital boards.

RESOLUTION NO. 49

Podiatry

WHEREAS, The Kansas Medical Society has endeavored to uphold the high standards of proficiency of the Healing Arts; and

WHEREAS, The practice of podiatry in Kansas does entail, among other things, surgery, except that "no podiatrist shall amputate the human foot or toes"; and

WHEREAS, The practice of podiatry in Kansas limits the use of drugs to "conditions below the ankle"; and

WHEREAS, The performance of surgical procedures on the feet by contemporary standards does require: (1) Knowledge of general medical conditions including possible contraindications or conditions making such procedures unusually hazardous such as diabetes, arteriosclerosis, Buerger's disease, etc., and (2) An ability to recognize and care for not uncommon complications such as infections or ana-

phylactoid reactions which require systemic treatment; and

WHEREAS, Operations on bones, tendons, joints, etc. are major surgical procedures irrespective of what part of the body they are performed upon, which by modern-day standards can only be adequately and safely performed in an approved hospital rather than as a minor office procedure; and

WHEREAS, The American Medical Association recognized podiatry as a valuable adjunct but also advised limiting podiatrists to those procedures which they are adequately qualified to do, recognizing the inadequacy of their educational standards; and

WHEREAS, Podiatrists in Kansas are not covered under the Healing Arts Board but are licensed by a separate Board with lower standards of knowledge and proficiency in the Healing Arts; and

WHEREAS, In many states surgical procedures by podiatrists are limited to "not below the fascia"; therefore be it

Resolved, That, if the podiatrists desire surgical privileges, they be required to meet the standards as established by the Healing Arts Act; and be it further

Resolved, That, in lieu of complying with the standards of the Healing Arts Act, the podiatrists be limited to surgical procedures on the feet not extending below the deep fascia.

RESOLUTION NO. 50

(This Resolution was not adopted, but referred to the Executive Committee.)

Regional Medical Program Field Consultant

WHEREAS, An application has been prepared by the Department of Obstetrics and Gynecology of the K.U. Medical Center for a K.R.M.P. grant to start a pilot program of providing visiting consultants to physicians of small communities who request consultation and who care for female patients with malignancy or heart disease; and

WHEREAS, Details of this project have been studied and approved by

The Kansas Obstetrical Society—L. E. Woodward, M.D., President,

The Joint Kansas Medical Society—Kansas State Department of Health Committee to Study Cancer Mortality of the Genital Tract, Female—Dan L. Berger, M. D., Chairman,

The Commission for Scientific Study of the Kansas Medical Society—David E. Gray, M.D., Chairman,

The Kansas Division of the American Cancer Society—J. LeRoy Wilson, Executive Secretary,

The Division of Maternal and Child Health—The Kansas State Department of Health—Evalyn S. Gendel, M.D., Asst. Director;

Therefore be it

Resolved, That the application for this project be approved by the Kansas Medical Society.

RESOLUTION NO. 51

Verification of Professional Charges

WHEREAS, The Kansas Medical Society favors third-party payment to physicians according to their usual and customary charges; and

WHEREAS, The usual and customary concept is preferable to any presently known method of third-party payment; and

WHEREAS, The continuation of this payment concept depends upon the presentation of substantial evidence that third parties do not pay a greater fee than the physician charges his average private paying patient for a comparable professional service; and

WHEREAS, Such activity is outside of the generally recognized purposes of the Kansas Medical Society; therefore be it

Resolved, That Blue Shield carry out such audits as are truly necessary to comply with the law; and be it further

Resolved, That Blue Shield cooperate with other fiscal intermediaries to determine what steps are necessary to verify charges; and be it further

Resolved, That Blue Shield report back to the House of Delegates at its next session.

RESOLUTION NO. 52

Title XIX—The Official State Plan

WHEREAS, The Official State Plan for Title XIX is in effect a contract between the official state agency (the State Department of Social Welfare in Kansas), and HEW, and describes how the program will operate within the state; and

WHEREAS, The Kansas Official State Plan was presented to the House of Delegates before Title XIX went into operation and was tentatively approved with an expression that all future amendments should be submitted to the House of Delegates for review; and

WHEREAS, The Kansas Plan was amended on March 28, 1968, as recorded on the attached page; and

WHEREAS, These amendments do not appear to alter the basic concept of Title XIX or to materially affect its operation; therefore be it

Resolved, That the amendments do not present revisions to which this Society will object.

TITLE XIX
The Official State Plan
Amendments presented March 28, 1968

PAGE 3—III. Coverage and Conditions of Eligibility:

1. Medical assistance will be available to the following individuals as "categorically needy" with medical care and services available in the same amount, duration and scope for:
   a.
   b.
   c.

NEW: d. *Spouses of individuals receiving aid or assistance under the State's plan approved under title XVI who are living with the recipient, who are determined to be essential to his well-being and whose need and income are taken into account in determining the amount of aid or assistance furnished the recipient.*

PAGE 4—III. Coverage and Conditions of Eligibility:

2. The following are other groups of individuals, based on reasonable classifications, that will be included in the program:
   a.
   b.
   c.
   d.
   e. Individuals meeting the States eligibility requirement for general assistance

NEW: *(limited to the categorically needy).*

PAGE 11—Amount, Duration, and Scope of Assistance:

NEW:

6. *With regard to medical and remedial care and services in relation to family planning there will be freedom from coercion or pressure of mind and conscience and freedom of choice of method, so that individuals can choose in accordance with the dictates of their conscience.*

PAGE 16—Administration.

B. Social Services:

NEW: With respect to social services in relation to family planning, there will be freedom from coercion or pressure of mind and conscience and freedom of choice of method, so that individuals can choose in accordance with the dictates of their conscience.

RESOLUTION NO. 53

Kansas Relative Value Studies

WHEREAS, The Kansas Relative Value Studies should provide the physician with a precise description of the procedure he actually performed and thereby enable him to correctly bill a third party by code number for the exact professional service rendered; and

WHEREAS, The KRVS is inadequate in its definition of services and in several areas the description of a single procedure should be divided into a number of specific components, each to be given its own identifying number; therefore be it

Resolved, That the identifying code numbers of the KRVS shall be the standard identifying numbers to be used by physicians when filing claims with third parties; and be it further

Resolved, That the Commission for Sociology and Economics be directed to appoint a committee on which shall be representatives of all major specialties in medicine including general practice and that this committee working in cooperation with Kansas Blue Shield shall prepare additional procedure descriptions wherever needed and assign to them appropriate identifying code numbers; and be it further

Resolved, That when the recommendations of such committee have been approved by the Commission for Sociology and Economics and by the Council of this Society, such revisions shall be incorporated into the Kansas Relative Value Studies and a fourth edition shall be published and distributed to the members of this Society.

RESOLUTION NO. 54

Verification of Charges

Resolutions pertaining to verification were combined into one resolution. Therefore, this resolution was not adopted.

RESOLUTION NO. 55

Statement of Policy: Kansas Blue Shield Prevailing Charge Plan

WHEREAS, There is a continuing need for clarification and mutual understanding between Blue Shield and Participating Physicians on the policies and regulations of the Prevailing Charge Plan; and

WHEREAS, The Policies and Regulations in the attached statement have been widely discussed in Blue Shield District Relations Committee meetings in eighteen Councilor Districts; and

WHEREAS, Provision is made in this Statement for an appeals procedure, review and modification as need arises; therefore be it

Resolved, That the House of Delegates approves the attached Statement as a working basis for administration of the Prevailing Charge Plan.

Approved Policies and Regulations
of the
Prevailing Charge Plan of Kansas Blue Shield

RECOMMENDED by Kansas Medical Society Blue

Shield Relations Committee .....
ADOPTED by the Blue Shield Board.....
APPROVED by the Kansas Medical Society House of Delegates .....

I. General Statement

This is a statement of Policies and Regulations applicable to the administration of the Prevailing Charge Plan, Blue Shield's primary subscribers' contract for the services of physicians.

The policies and regulations adopted in this Statement give meaning and effect to the Participating Physician's Agreement, page 1, paragraph 2, wherein the Participating Physician agrees to abide by the Policies and Regulations of Blue Shield.

The policies and regulations herein are applicable to Title XVIII and Title XIX claims to the extent that benefits and policies of these programs coincide with Blue Shield benefits and policies.

Modifications in this statement to correct inequities and faulty procedures may be made from time to time by the Blue Shield Board of Directors, in consultation with the most directly affected medical specialties. However, major changes in policy will be made through the following processes:

A. Presentation and discussion in District Blue Shield Relations Committee meetings.
B. Review and recommendation of the Statewide Blue Shield Relations Committee.
C. Adoption by the Blue Shield Board.
D. Approval by the House of Delegates of the Kansas Medical Society.

The above steps constitute the normal process for making major changes in policy. However, it is understood that if a situation arises which in the judgment of the Blue Shield Board requires more timely or urgent action, action may be taken.

II. The Basic Premise

The moral and financial soundness of the Prevailing Charge Plan is based on the premise that each Participating Physician will charge Blue Shield the same fees that he charges non-Blue Shield patients for like services and each Participating Physician has affirmed this premise in his signed agreement.

III. Registration of Charges

It is agreed that:

A. Coding and nomenclature used by Blue Shield will be that of the Kansas Relative Value Study adopted by the House of Delegates of the Kansas Medical Society in May, 1966. However, the use of KRVS coding and nomenclature does not necessarily imply adoption by Blue Shield of the unit values for services described. Individual Participating Physicians will be requested to register their charges on the basis of a stated fee per procedure.

Note: The above statement applies only to surgery, radiology and pathology at this time. Further work is necessary with the Liaison Committee for Internal Medicine in connection with coding and nomenclature for medicine.

B. Approximately 250 procedures are to be *included in the registration list.* These account for about 75 per cent of total claims.
C. Participating Physicians need register only those procedures in the registration list which they perform with some frequency.
D. When a physician occasionally performs a procedure *included in the registration list,* which he did not register, it is expected that he will bill his usual charge and that this charge will be similar to charges for registered services of similar value.
E. Procedures not included in the registration list will be paid in accordance with Paragraph D above, subject to maximums derived by comparison to maximums for registered procedures of similar complexity. Ultimately, 90th percentile ranges will be established when a sufficient number of cases has been accumulated on these nonlisted procedures.
F. Atypical services will be paid through special adjudication by review committees of physicians based on special reports substantiating the unusual nature of the services.

IV. Re-Registration of Charges

It is an accepted policy of the Prevailing Charge Plan that a Participating Physician may re-register his charges when he decides to adjust his standard charges in his practice. Increases in charges are to be expected as the costs to the physician in performing his services continue to increase. On the other hand, the medical profession needs to assure the public that increases are based on objective factors—that is, on demonstrable increases in the costs of operating a medical practice. In order to give reasonable assurances that this principle is being followed, it is agreed that:

A. A re-registered charge will become effective for services to patients 30 days after date of receipt by Blue Shield;
B. To be acceptable, a re-registered charge must fall within the Prevailing Charge Plan range maximum for the procedure re-registered;
C. If a physician re-registers a charge over the Prevailing Charge Plan range maximum, Blue Shield will notify him the amount payable. If the physician agrees to accept the Blue Shield payment as payment in full, he should continue to bill Blue Shield and other patients his registered charge even though the Blue Shield payment will be less than the charge due to its being in excess of the Prevailing Charge Plan range maximum. However, the physician agrees not to charge the patient any difference between the Prevailing Charge Plan range maximum and his charge.

D. Participating Physicians agree not to re-register the same procedure more than once in a twelve-month period. In unusual circumstances special consideration may be given.

E. Substantial percentage increases in charges will be subject to acceptance through processes developed by the Kansas Medical Society.

V. Recomputation of Ranges

It is the policy of the Prevailing Charge Plan to adjust charge ranges to reflect actual changes in charging practices of Participating Physicians. It is agreed that Prevailing Charge Plan ranges will be recomputed as follows:

A. Recomputation will be performed annually on dates determined by the Blue Shield Board.

B. *All* active registrations for a given procedure will be used in the recomputation, whether such registrations are over or under the range maximum. The term "active" means a charge registration for a procedure performed at least once during the twelve-month period prior to recomputation.

C. The recomputation will consist of establishing new Prevailing Charge Plan range maximums based upon the 90th percentile of physicians performing the service or the 90th percentile of the number of services performed, whichever is higher. Registrations of physicians who did not perform the service within twelve months preceding the recomputation date will not be used in the recomputation. This assures that the Prevailing Charge Plan ranges will reflect charges for actual cases.

D. When the Prevailing Charge Plan range maximum changes *up or down* due to recomputation, adjustments in Blue Shield payments will be made on services occurring after the effective date of the new ranges. For example:

Range Increase: If a physician had registered $125 for a given procedure for which the range maximum was $110, he will continue to bill Blue Shield $125 and Blue Shield would pay $110. If the range goes to $120 as a result of recomputation, Blue Shield will begin paying $120 to this physician (since his usual charge is higher) after the effective date of the new range.

Range Decrease: If a sufficient number of physicians re-registered charges lower than their original registrations, the 90th percentile might be computed at a lower figure at the next annual computation. For instance, because of improved technics, a lab procedure might be performed at a lesser fee so that the maximum charge moved downward from $7 to $5. A physician still charging $7 for this service would be over the recomputed maximum at this point. He would be informed of this. Blue Shield would pay $5 toward his usual charge and the physician would be requested to "write off" the difference. The lowering of a Prevailing Charge maximum as illustrated could *only* occur if a relatively large percentage of physicians performing the procedure were to re-register a lower charge than they made in the past.

VI. Appeals Procedures

In the operation of a program which encompasses the complexities of medical practice, it is to be expected that not all policies will be perfect and that the possibility for misunderstanding the decision regarding services exists. Many misunderstandings are caused by faulty reporting. If at any point within the process of registration, re-registration, Plan payment, or review committee actions, an individual physician feels that an error, either mechanical or judgmental, has been made, he shall have the right to the following appeals procedures: (THE PHYSICIAN PRESENTING THE APPEAL MAY BE PRESENT AT ANY HEARING IF HE SO DESIRES.)

1. He may request review of his claim or complaint (with additional information furnished) by a review committee.
2. He may request review of his claim or complaint as originally reported (assuming no new information is available) by the Blue Shield Executive Committee.
3. He may request review of his claim or complaint by the special Surgical Committee or special Medical Service Committee of the Kansas Medical Society.

It is agreed that in cases of this kind where the special committees are called upon to review a claim or complaint, the recommendation of the special committees will generally be accepted. In instances which are precedent setting, involving significant changes in Blue Shield liability, the Blue Shield Board must assume ultimate authority.

VII. Case Policies and Procedures

This section broadly outlines policies to be applied to various specific professional services. These policies principally involve the definition of content of service under fees or the basis upon which professional services will be considered eligible for payment. In a few instances, the policies may pertain to the method in which payment of Blue Shield is provided.

1. General Payment Policies

A. *Professional Services in Outpatient Departments or Hospitals*—No payment shall be made for outpatient emergency care if the physician is not in actual attendance to the patient or unless the claim indicates unusual circumstances.

B. *Payment to Participating Physicians*—All payments will be made directly to Participating Physicians except in cases where the patient has previously paid his bill. Also, under Plan 65, when the Medicare payment must be sent to the beneficiary the Plan 65 payment will also be sent to the beneficiary.

2. Concurrent Professional Care
Concurrent care by two or more physicians providing medical and/or surgical services to the the same patient during the same period of hospital confinement shall be covered if review committees concur that supplementary skills by separate physicians were medically necessary in the case. Participating physicians will forgive charges in cases where review committees deny medical necessity for concurrent care *unless* the patient specifically requested additional services. (When patient specifically requests additional services, the patient may be directly charged in the event that a review committee denies medical necessity.)

3. Medical Care in the Hospital
A. *Standard Medical Services*—Physicians register Standard Charges on the following basis: (1) Standard First Day Hospital Care, (2) Comprehensive First Day Hospital Care, (3) Subsequent Days, Standard Hospital Care, Charge Per Day.
B. *Multiple and/or Prolonged Hospital Visits*—Charges in excess of standard daily hospital care registrations, made either as a result of multiple visits or prolonged visits, are provided only by special consideration and when the billing itemized them along with providing enough information to substantiate the need for such services.

4. Physician's Commitment to Registered Surgical Charges
A. *Major Surgery*—The standard commitment to the registered charge for major surgery is considered to include normal preoperative care to begin with admitting patient, the surgery itself, and normal postoperative care considered to include period of hospitalization after surgery plus the minimum of 14 days post-hospitalization follow-up.
B. *Minor Surgery*—Fees for minor surgery, defined as a procedure of 7.0 KRVS units or less, are considered to include the surgeon's services on the day of surgery itself and routine follow-up. Additional charges for unusual follow-up services are provided special consideration by reviewing committees.
C. *Major Out-Patient Surgery*—Charges for these services are considered to include the surgical procedure itself and minimum of 14 days follow-up.
D. *Assistant Surgery*—Assistant Surgery is considered to be those services provided at the operating table by the surgical assistant. The doctor's registered charge is covered on this basis if assistant surgery would customarily be required in conjunction with the surgical procedure and if assisting surgery charges would customarily be billed to the patient.

5. Multiple Surgery
Multiple surgical procedures performed on the same patient by the same physician are covered according to the policies outlined in Kansas Relative Value Study, 1966 Edition. Multiple surgical procedures on the same patient performed by more than one physician would generally be paid at each physician's full registered charge up to Prevailing Charge Plan range maximums on the basis that two surgeons would only be required because of medical necessity for specialized skills or because of critical need of the patient. In no case would incidental surgery (including incidental appendectomies) be payable and Participating Physicians are requested to forgive any such charges for procedures so identified by Review Committees.

6. Orthopedics
General policy regarding Orthopedic services will be defined by Blue Shield with the assistance of a special Orthopedic advisory committee. Guide rules so developed will be distributed to all Participating Physicians in the future.

7. Consultations
One consultation per hospital confinement is covered. Additional consultations are allowable per special consideration by Blue Shield Review Committees. A consultation fee is subject to the general principle of the Prevailing Charge Program and is only payable when this service would customarily be charged to the patient.

8. Non-Surgical Treatment for Accidental Injuries or Burns
A. *Non-Surgical Treatment of Accidental Injuries*—The initial emergency treatment and up to three follow-up office visits within sixty days are covered by Blue Shield. Professional charges are considered to include both professional services and all materials used as well as the cost of topical or local infiltration anesthesia. Additional office visits may be provided at standard charges through special consideration.
B. *Burn Care*—Professional services to hospitalized patients are covered according to registered charges for daily in-hospital medical care and/or operative services. Out-patient and office cases are covered in the same manner used for the non-surgical treatment of emergency injuries (A, above) and cases requiring more than three follow-up visits are eligible for special consideration by Review Committees.

9. Repair of Lacerations
   The customary professional charge is considered to include professional services, cost of materials, administration of topical or local infiltration anesthesia, and removal of sutures when removal is done by the same physician. Special consideration is available for atypical charges resulting from special services to treat wound infection, disruption, or similar complications. Nomenclature used in billing for lacerations will be developed with the help of professional advisory committees and subsequently distributed to all physicians.
10. Other Policies Currently Under Development
    Blue Shield Prevailing Charge Plan Policy in relation to Traveling Surgery, Radiology, Pathology, Obstetrics, Gynecology, and other specific specialty services will be developed through the assistance of advisory committees representing medical specialties affected. Guide rules will be printed and distributed upon the completion of the work by these committees.

A specific explanation of Blue Shield policies will be distributed to physicians in the fall of 1968 and will subsequently be illustrated in Participating Physicians' Manuals.

RESOLUTION NO. 56

Blue Shield and Podiatry

Similar in content to Resolution No. 49; therefore, this resolution was not adopted.

RESOLUTION NO. 57

Requirement for Membership in the AMA

This resolution was not adopted.

RESOLUTION NO. 58

Revision of Section on Radiology in 1966 KRVS

WHEREAS, The majority of radiologists practicing in Kansas bill independently for their professional services rendered in hospitals; and

WHEREAS, The 1966 Kansas Relative Value Schedule contains no relative value scale for units of professional service only in radiology; and

WHEREAS, The 1966 KRVS for units of overall radiological service is in need of revision in some sections; therefore be it

Resolved, The Commission on Socio-economics recommends adoption of the attached revised section on Radiology as a substitution for the present Radiology section of the 1966 KRVS.

RESOLUTION NO. 59

Ancillary Professions

WHEREAS, The assistance of ancillary persons to physicians in their medical practice is traditional; and

WHEREAS, Medical personnel is insufficient to carry out all necessary medical services; and

WHEREAS, Ancillary persons working under a physician's supervision perform valuable care and the United States Government recognizes the necessity of the work of ancillary assistants under medical supervision in grants to schools, in the Armed Forces, and in other ways; and

WHEREAS, Radiology and Pathology have demonstrated the values of such technical assistants; therefore be it

Resolved, That the Healing Arts Act be amended to legally define the scope of work trained ancillary personnel may perform under medical direction.

RESOLUTION NO. 60

Revision of Section on Orthopaedics in 1966 KRVS

WHEREAS, The Commission on Socio-Economic Study recommends the organized specialty societies of Kansas to re-examine sections of the Kansas Relative Value Studies applicable to their specialty; and

WHEREAS, The Kansas Orthopaedic Society has reviewed in detail the sections of the KRVS applicable to orthopaedic services and has added code numbers to provide a more accurate description of certain procedures and has altered the relative value points of some others; and

WHEREAS, The Kansas Orthopaedic Society has approved the proposed alterations to the KRVS; therefore be it

Resolved, That these be adopted and included as the Orthopaedic Section of the next printing of the Kansas Relative Value Studies.

RESOLUTION NO. 61

(Adopted at first meeting of the House of Delegates)

Expression of Gratitude to E. F. Steichen, M.D.

WHEREAS, The presence of a Doctor of Medicine in the Kansas Legislature is of great benefit to this body in its deliberations on matters relating to health; and

WHEREAS, Serving in the legislature represents a sacrifice on the part of a physician; and

WHEREAS, Dr. Steichen has been of invaluable assistance to the Kansas Legislature during its deliberations on subjects relating to health; and

WHEREAS, Dr. Steichen has in addition to his legislative duties performed numerous professional services for members of the legislature; and

WHEREAS, The Kansas Legislature adopted House Resolution No. 1034 in which the House commends and thanks Dr. Steichen "for his many acts of kindness . . . " and because "this good doctor has performed many services for this body above and beyond the call of duty . . ." they "express their appreciation for the many good deeds the Doctor has performed"; therefore be it

Resolved, That the Kansas Medical Society express its gratitude to Dr. E. F. Steichen for his extraordinary services to this Society, to the medical profession and to the people of Kansas.

RESOLUTION NO. 62

Blood as a Medical Service

WHEREAS, The American Medical Association has adopted the following statement and recommends this be enacted into law; therefore be it

Resolved, That the Kansas Medical Society request the 1969 Kansas Legislature to enact the following into law:

> The procurement, processing, distribution or use of whole blood, plasma, blood products, blood derivatives and other human tissues such as corneas, bones or organs for the purpose of injecting, transfusing or transplanting any of them into the human body, for compensation or otherwise, shall be deemed for all purposes the rendition of a service by every person participating therein and shall in no event be construed or treated as a sale of such whole blood, plasma, blood products, blood derivatives or other tissues, for any purpose. No such procurement, processing, distribution or use shall create or give rise to any warranty of any type with respect to any such whole blood, plasma, blood products, blood derivatives and other human tissues.

RESOLUTION NO. 63

An Expression of Appreciation to the State Board of Social Welfare

WHEREAS, The Kansas State Board of Social Welfare, in its implementation of the Title XIX program in this state, accepted recommendations from this Society to

1. Give eligible recipients almost unlimited health care, provided professional service is for a medical necessity and that care provided is of a quality and quantity within accepted community standards;
2. Permit the physician to exercise his professional judgment in the selection of drugs without arbitrary controls;
3. Pay physicians their reasonable, usual and customary charges provided these are within range maximums;
4. Employ Kansas Blue Shield to serve as fiscal intermediary;
5. Buy in Part B benefits under Title XVIII for eligible Title XIX recipients;
6. Employ as medical coordinator the physician suggested to Welfare by this Society;
7. Submit to the Advisory Committee to Welfare for suggestions all questions relating to rules and regulations affecting medical care under this program;
8. Permit this Society to review questions relating to utilization charges and abuses; and

WHEREAS, The State Board of Social Welfare has courteously and seriously considered every recommendation affecting the Title XIX program which has been made by this Society; therefore be it

Resolved, That the Kansas Medical Society express its appreciation to the members of the State Board of Social Welfare, the director and his staff for the extraordinary effort they have made to insure the success of this program.

RESOLUTION NO. 64

Statistics of Medical Care

WHEREAS, The concept of the hospital being the "center of medical care in a community" lacks substantive proof; and

WHEREAS, No valid statistics concerning patient origin, numbers of patients seen in the private physicians' offices, coverage under third party carriers (including Medicare Titles XVIII and XIX), etc., are available at the present time as has been done under the hospital structure today; and

WHEREAS, This information could be very important for discussions with these third party carriers (whether private or governmental); therefore be it

Resolved, That a mechanism be established under the direction of the Commission for Sociology and Economics of the Kansas Medical Society and the Chairman of the Department of Preventive Medicine of the University of Kansas Medical Center to:

1. Disseminate information to the membership in the way of education in order to obtain adequate and satisfactory statistical information.
2. Establish a method of actually obtaining the information.

3. Publish the statistical information to the membership in the JOURNAL OF THE KANSAS MEDICAL SOCIETY.

RESOLUTION NO. 65

Council Districts

WHEREAS, The Kansas Department of Economic Development has created eleven (11) Regions of Kansas which will be used by Comprehensive Health Planning and many other programs; and

WHEREAS, There has not been a recent examination of the eighteen (18) Council districts of the Kansas Medical Society; therefore be it

Resolved, That the Commission on Society Organization be requested to accept the study of the revision of Council districts to determine whether it would be feasible to make these boundaries comply with the Regions of Kansas; and be it further

Resolved, That the Commission on Society Organization submit its recommendations at the 1969 Annual Session of the House of Delegates.

RESOLUTION NO. 66

Licenses Issued by the Healing Arts Board

WHEREAS, Licenses issued by the Healing Arts Board are signed by the president and secretary; and

WHEREAS, The president is elected by the board in rotation from the different professional groups represented on the board; and

WHEREAS, It would appear appropriate that a license should carry the signature of a person who holds a license in the same healing arts profession; and

WHEREAS, There appears to be nothing in the Healing Arts Act to require the president of the board to sign all licenses; therefore be it

Resolved, That the Kansas Medical Society recommend to the Healing Arts Board that licenses issued by the Healing Arts Board shall carry the signatures of the persons on the board who hold licenses in the same branch of the healing arts as the person to whom the license is issued and that the signature of the secretary of the board shall be for the purpose of attesting to the fact that the records at the business office of the board affirm the applicant has met requirements necessary for obtaining such license.

RESOLUTION NO. 67

Kansas Orthopedic Society

WHEREAS, The orthopedists of Kansas have altered the name of their specialty society; therefore be it

Resolved, That the By-Laws be amended in Section 4.585 by changing the word "Club" to "Society."

RESOLUTION NO. 68

Kansas Urological Society

WHEREAS, The organized specialty societies which are listed in the By-Laws are entitled to one delegate each to the House of Delegates; and

WHEREAS, The Kansas Urological Society is an organized specialty society; therefore be it

Resolved, That the By-Laws be amended by the addition of a new section numbered "4.58, 13 Kansas Urological Society."

RESOLUTION NO. 69

Disability Insurance

WHEREAS, The C. Ray Tyler Agency, Wichita, Kansas, has been reorganized with a change in ownership since being removed from the approved list to administer disability, major medical and high limit accidental death and dismemberment policies underwritten by the Commercial Insurance Company; and

WHEREAS, The Commercial Insurance Company is one of the oldest companies in the field of Association Group Plans and was approved in 1945 and withdrawn in 1961; therefore be it

Resolved, That the Kansas Medical Society reapprove the Commercial Insurance Company plan be administered in Wichita, along with the present approval of Washington National which would greatly increase competition to the point that each company and agency would strive to upgrade the benefits and services on their existing and future policies.

RESOLUTION NO. 70

Karl A. Menninger, M.D.

WHEREAS, Dr. Karl Menninger, distinguished native son of Kansas, a member of a talented Kansas medical family, is devoted to the best interests of the state of Kansas, and is a 50-year member of the Kansas Medical Society; and

WHEREAS, Dr. Karl in association with his father, brother, and co-workers, has established and developed one of the world's most famous psychiatric institutions which has been in the forefront of psychiatric advances and treatment; and

WHEREAS, Dr. Karl, working with others, has

made the state of Kansas famous for its enlightened and efficient treatment of psychiatric patients in state and federal institutions, and has made the state of Kansas a model for other states in such care; and

WHEREAS, Dr. Karl, as co-founder and Dean of the Menninger School of Psychiatry, has been in a position of primary responsibility for the postgraduate training of over 800 psychiatrists; and

WHEREAS, Dr. Karl, as the author of eight books, has brought great understanding of the scope and problems of mental illness to the laity of the world; and

WHEREAS, Dr. Karl has been honored by many institutions of higher learning, and learned societies throughout the world; and

WHEREAS, Dr. Karl has worked indefatigably for the health and welfare of the American Indian, for the rehabilitation of convicted prisoners, and for numerous other humanitarian causes; therefore be it

Resolved, That the Kansas Medical Society vote to bestow upon this accomplished physician and gentleman, the Distinguished Services Award of this Society.

RESOLUTION NO. 71

Kansas City Area Health Planning Council

WHEREAS, The Johnson County Medical Society has endorsed and approved the Health Planning Council of the Kansas City Metropolitan Region as the designate health planning agency in the Kansas City metropolitan area; and

WHEREAS, The Wyandotte County (Kansas) and the Jackson County (Missouri) Medical Societies have given similar endorsements to the Health Planning Council of the Kansas City Metropolitan Region; and

WHEREAS, The Health Planning Council and its antecedents have been in existence a considerable period of time, gaining valuable experience thereby; and

WHEREAS, The Health Planning Council has broad representation of the public, the hospitals, and the medical profession of Greater Kansas City; and

WHEREAS, It is the spirit and intent of Public Law 89-749 to establish a single health planning agency for each metropolitan area in order to prevent wasteful duplication of planning agencies; and

WHEREAS, The Kansas Medical Society has already affirmed its preference of the Kansas State Board of Health as the official agency for Comprehensive Health Planning in Kansas; therefore be it

Resolved, That the Kansas Medical Society endorses the Health Planning Council of the Kansas City Metropolitan Region as the designate health planning agency of Greater Kansas City under the Comprehensive Health Planning Law; and

That the Mid-America Council of Governments strongly be urged likewise to support the Health Planning Council of the Kansas City Metropolitan Region as the designate health planning agency of Greater Kansas City; and

That this resolution be distributed to the following persons and agencies:

Health Department, State of Kansas
Health Department, State of Missouri
Health, Education and Welfare Department, Washington, D. C.
Congressional Representatives for the Greater Kansas City Metropolitan Area
Area Medical Council of Greater Kansas City
Executive Director, Kansas Medical Society
Executive Secretary, Jackson County Medical Society
Executive Secretary, Wyandotte County Medical Society
Executive Secretary, Clay County Medical Society
Coordinating Council for Health Planning in Kansas

RESOLUTION NO. 72

Blue Shield Study

WHEREAS, Kansas Blue Shield was created by the physicians of Kansas; and

WHEREAS, Kansas Blue Shield has grown, through expanding policies, to be the largest provider of prepaid health care in Kansas; and

WHEREAS, Kansas Blue Shield is the fiscal intermediary agent of Medicare, Medicaid and other allied groups; therefore be it

Resolved, That the president of the Kansas Medical Society appoint a committee to reevaluate the status of Kansas Blue Shield; and be it further

Resolved, That this study should cover Blue Shield's present philosophy and operation (including contracts with physicians, federal government and other allied groups, its salaries, finances, public relations policies, and its relation with Blue Cross), and its future position in the realm of medical practice; and be it further

Resolved, That a report be submitted at the next annual Kansas Medical Society meeting with recommendations so that better understanding and unity may exist for both Blue Shield and the physicians of Kansas.

RESOLUTION NO. 73

Endorsement of a Research Project by the Kansas Medical Society

WHEREAS, The Kansas Medical Society has recom-

mended an increased emphasis on the orientation of physicians in the area of sexuality in the curriculum of our medical school; and

WHEREAS, The University of Kansas School of Medicine and the University of Kansas School of Nursing are attempting to develop in the curriculum a course in human sexuality with emphasis on sexual counseling and human growth and development; and

WHEREAS, There is need to survey the necessity for postgraduate education and graduate education involving sexual counseling and sexual problems; and

WHEREAS, The Department of Preventive Medicine and Community Health is undertaking a research effort to survey the physicians of Kansas concerning the sexual counseling problems with which they are confronted; therefore be it

Resolved, That the Kansas Medical Society endorse this research project; and be it further

Resolved, That the Committee on School Health serve in an advisory capacity for this project as it is conducted.

RESOLUTION NO. 74

Appreciation to Shawnee County Medical Society

WHEREAS, The Kansas Medical Society is today closing its 109th Annual Scientific Meeting; and

WHEREAS, This meeting has proven to be one of the most successful sessions in the recent history of the Kansas Medical Society; and

WHEREAS, The members of the Shawnee County Medical Society have been fine hosts and major contributors to the success of this meeting; therefore be it

Resolved, That this House of Delegates officially express its appreciation to the Shawnee County Medical Society; and be it further

Resolved, That this House of Delegates commend the management of the Ramada Inn for their excellent cooperation with the Kansas Medical Society headquarters staff in conduct of this meeting.

RESOLUTION NO. 75

Specialty Societies

WHEREAS, Ophthalmology is a distinct and separate specialty; and

WHEREAS, Otorhinolaryngology is a distinct and separate specialty; therefore be it

Resolved, That a separate section on ophthalmology and a section on Ear, Nose and Throat be established by the Kansas Medical Society; and be it further

Resolved, That the by-laws be amended in Section 4.582 by deleting the letters EENT and adding after the word "Section" the words "on ophthalmology"; and be it further

Resolved, That a new section 4.58, 14 be added to read "Section on Ear, Nose and Throat."

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

Edward G. Belzer, M.D.
7301 Mission Road
Prairie Village, Kansas 66208

John A. Billingsley, Jr., M.D.
Southeast Kansas TB Hospital
Chanute, Kansas 66720

D. E. Macy, M.D.
1111 Sunrise Drive
Salina, Kansas 67401

Richard Blair, M.D.
4th & Maine
Lawrence, Kansas 66044

Joseph L. Denner, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

William L. Halling, M.D.
1st National Bank Building
Hays, Kansas 67601

David L. Hiebert, M.D.
2209 Hill Court
Lawrence, Kansas 66044

Harry A. Stewart, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Robert S. Young, M.D.
1018 W. 24th Street
Lawrence, Kansas 66044

Marcus W. Adams, Jr., M.D.
12th & Main
Hutchinson, Kansas 67501

Wilbur K. Baker II, M.D.
711 Capital Place
Muskogee, Oklahoma 74401

Raul E. Brito, M.D.
427 N. Hillside
Wichita, Kansas 67214

James J. Burke, M.D.
209 S. Main
Ft. Scott, Kansas 66701

Elbert M. Caple, M.D.
3515 Broadway
Great Bend, Kansas 67530

Leonard W. Johnson, M.D.
Medical Arts Building
Leavenworth, Kansas 66048

Jon K. Kardatzke, M.D.
1301 N. Main
Wichita, Kansas 67203

Harold W. Keairnes, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Byron T. Liggett, M.D.
1723 Williams
Great Bend, Kansas 67530

Joseph E. McMullen, M.D.
Hutchinson Clinic
Hutchinson, Kansas 67501

John C. Mull, M.D.
Hutchinson Clinic
Hutchinson, Kansas 67501

Robert K. Norton, M.D.
Hertzler Clinic
Halstead, Kansas 67056

Antonio Paschino, M.D.
9500 Mission Road
Shawnee Mission, Kansas 66206

Ronald S. Reivich, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

Kenneth E. Sayler, M.D.
K.U. Medical Center
Kansas City, Kansas 66103

John C. Scott, M.D.
1400 Polk
Great Bend, Kansas 67530

Dale C. Smith, M.D.
7501 Mission Road
Shawnee Mission, Kansas 66208

Lauren K. Welch, M.D.
1410 Polk
Great Bend, Kansas 67530

The Council

Report of Meeting Held May 1, 1968

A meeting of the Council was held on Wednesday, May 1, 1968, at 1:30 p.m. at the Ramada Inn, Topeka.

Present were J. L. Morgan, President; V. E. Brown, G. E. Burket, Jr., T. P. Butcher, F. T. Collins, C. C. Conard, R. F. Conard, H. F. Coulter, E. W. Crow, N. L. Francis, K. L. Graham, G. F. Gsell, R. H. Hill, R. W. Hughes, J. G. Lee, Jr., J. W. Manley, J. J. Marchbanks, W. E. McAllaster, S. C. McCrae, J. C. Mitchell, G. L. Mowry, P. M. Platten, L. R. Pyle, W. J. Reals, W. G. Rinehart, Alex Scott, E. T. Siler, B. G. Smith, L. N. Speer, M. O. Steffen, T. F. Taylor, Jack Walker, F. P. Wolff, and E. D. Yoder. Also present were Mr. R. G. Swenson and Mr. Oliver E. Ebel.

The meeting was called to order by Dr. J. L. Morgan who explained it would be brief, but that a very few items needed to be determined at this time. He also introduced the newly elected officers and councilors.

Dr. Morgan then announced that the Editorial Board consists of five physicians, each serving three-year terms. This year, the term of Dr. J. A. Segerson is completed. He is eligible for reappointment, and Dr. Morgan asked the Council what they wished to do. The Council unanimously re-elected Dr. Segerson for another three-year term.

Dr. Morgan stated that the Editor is appointed by the Council annually for a one-year term. He said the Society is deeply in debt to Dr. Orville R. Clark for his outstanding contribution to the Society as editor. He expressed his confidence that the Council will again appoint Dr. Clark as editor of the JOURNAL. The Council reappointed Dr. Clark unanimously.

Dr. Morgan asked Mr. Ebel to explain why nominations for the Blue Cross Board were not requested this year. The 1968 Legislature altered the composition of the board and reduced the number of physicians. The Blue Cross Board will meet in May to determine the formula to be used for board selection in the future. For this reason, there is no action to be taken until such is requested from the Blue Cross Board.

Mr. Ebel explained that the Executive Committee recommended the Roster be published as the 13th edition of the JOURNAL, if this meets with the approval of the Council. It was authorized.

The President next called upon Dr. N. L. Francis, chairman of the KaMPAC Board, for a report. Dr. Francis explained that in an election year more memwers were needed and that more money also was needed for educational purposes. He requested the Society to contribute $1,000 to be used for educational purposes only and for no other services.

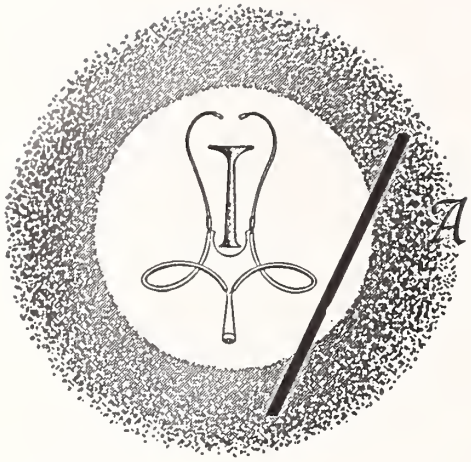
The question was raised whether this exceeded the limitation on contributions established by the House of Delegates. Dr. L. R. Pyle expressed his opinion that this is a Society function and not a contribution. It involves the membership and therefore should not be construed as a gift. A motion was made and seconded that the Society appropriate $1,000 to KaMPAC and to express its thanks to Dr. Francis for the magnificent service he is rendering. The motion carried.

Dr. Morgan called upon Dr. Jack Walker, who presented the Council with a draft of a memo Dr. George A. Wolf, Jr., Dean, proposes to prepare and give to each patient hospitalized at the University of Kansas Medical Center. He asked the Council to approve this project before it is placed into operation. Several stated this is common practice. It was further noted that the request for contributions also included mention of other hospitals. It was then moved and seconded that the brochure be approved.

Dr. F. T. Collins, as Medical Advisor to Selective Service, reminded the Council, and especially the new members, that they were his committee and that questions relating to physicians being called into the service were regularly referred to the councilor of the district involved for local recommendations. He asked for their continued help in this effort.

Dr. Morgan stated that the House of Delegates directed him to appoint a committee to study Blue Shield. He expects to do this soon, but asked the Council to consider any names they thought especially suitable for membership on such committee. He would appreciate a letter from anyone who has a suggestion to offer.

Dr. Morgan announced that the next meeting of the Council will be held in October.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

COOPERATION URGED FOR STUDY OF PEDIATRIC DISORDER

The cooperation of physicians has been requested in a study concerning "tracheostomy addiction" in infants and children. Our group at the Children's Memorial Hospital will appreciate the opportunity of seeing patients who have had at least one unsuccessful decannulation attempt. The study is being carried out by the Departments of Pediatrics and Otorhinolaryngology at the Children's Memorial Hospital, University of Oklahoma Medical Center. Arrangements for hospitalization without cost to the family can be made. Physicians interested in having such patients to be considered for this study may contact: Dr. Logan Wright, Children's Memorial Hospital, University of Oklahoma Medical Center, 800 N. E. 13th Street, Oklahoma City, Oklahoma 73104. Telephone: CE 6-1366, Ext. 670.

AUGUST

Aug. 15-16 — Midwest interprofessional seminar, *Diseases Common to Animals and Man*, Mayo Memorial Auditorium, Minneapolis. Write: Dr. S. L. Diesch, Dept. of Veterinary Medicine, Univ. of Minnesota, St. Paul 55101.

Aug. 15-17 — *Big Sky Medical Pow Wow*, Great Falls, Montana. The Cascade County Medical Society is sponsoring a 3-day symposium with internationally known speakers, including Dr. Donald Greaves of KUMC. The symposium, approved for 11½ hours credit by the AAGP, offers physicians the opportunity to combine a good educational seminar with a family vacation in Montana. Special entertainment is planned, including a banquet and skating exhibition featuring Olympic skater, John Mischa Petkevich, and the annual East-West All-State Football game. Great Falls is 2 hours from Glacier National Park and 200 miles from Yellowstone Park. Registration Fee: $10. For further information write: R. E. Wynia, M.D., 203 20th St. South, Great Falls 59401.

Aug. 22-24 — The University of Wisconsin Medical School Division of Clinical Oncology will hold its eighth annual National Cancer Conference—*Cancer Chemotherapy '68*—at the Motor Park Inn, Madison. Write: Dept. of Postgraduate Medicine, Univ. of Wisconsin Medical Center, Madison.

Aug. 24-29 — Eighth International Congress of Gerontology, Sheraton Park and Shoreham Hotels, Washington, D. C., and Baltimore, Maryland. Write: Secretariat, 8th International Congress of Gerontology, 9650 Rockville Pike, Bethesda, Maryland 20014.

Aug. 25-30 — Flying Physicians Association, Tan-Tar-A, Osage Beach, Missouri. Exec. Sec.: Albert Carriere, 332 S. Michigan, Chicago 60604.

POSTGRADUATE COURSES

University of Colorado:

July 8-11 — *Ophthalmology* (Estes Park)

July 15-18 — *Changing Role of the Medical Record Librarian* (Estes Park)

July 21-27 — *General Practice Review*

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver 80220.



Personalities—IN KANSAS MEDICINE

Leonard W. Johnson, Leavenworth, and **David H. Clark,** WaKeeney, were recently elected to active membership in the American Academy of General Practice.

In March, the employees of the William Newton Memorial Hospital at Winfield honored **Alvin Y. Wells** by electing him "Ambassador of the Month."

Robert Haines, Topeka, attended the Regional Conference on Improvement of Education of Handicapped Children held in Denver in April.

A resolution honoring **Edward F. Steichen,** Lenora, was unanimously passed by the Kansas House of Representatives during its recent session. The resolution commended and thanked Dr. Steichen, state representative of District 114, for the many services performed for the members and employees of the House.

Robert O. Brown, Atchison, left in May to serve 60 days as a volunteer physician in Vietnam. The Volunteer Physician program, under the auspices of USAID, supplies care to the civilian population of South Vietnam.

John F. Coyle of Coffeyville was re-elected president of the Montgomery County Division of the Kansas Heart Association at the group's regular monthly meeting in April.

William S. Simpson, Topeka, was appointed clinical director of the Topeka State Hospital in May.

The Johnson County Tuberculosis and Health Association re-elected **E. C. Altenbernd,** Overland Park, president at their annual meeting held in Lenexa in April.

In April, the Leavenworth County Medical Society gave a testimonial dinner honoring **George R. Combs** of Leavenworth. Dr. Combs, who has been a practicing physician for over 65 years, was presented a silver loving cup for outstanding service to his profession and community. The award was made by **Donald Snow,** president of the county society, on behalf of his associates.

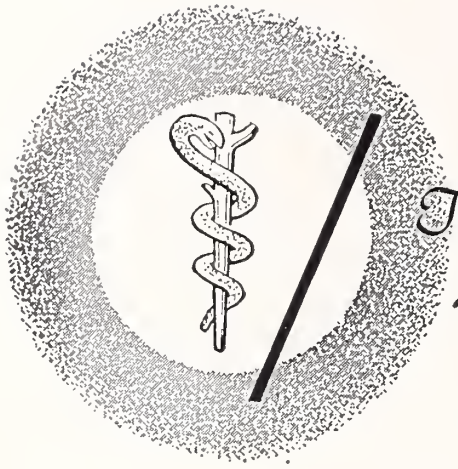
A symposium on the recognizing and handling of abnormal persons by law enforcement officers was held in Dodge City in May. Participating in the two-day program were **Morgan Stockwell** and **Clair C. Conard,** both of Dodge City.

Ralph Hale, Wichita, discussed "The Changing Pattern of Medical Care," at the annual dinner meeting of the Wichita Tuberculosis Association held in April.

Earl G. Padfield, Salina, retired in April after 57 years of medical practice.

David M. Lukens, Hutchinson, president of the Kansas Heart Association, spoke at a dinner meeting of the Soroptomist Club in Salina in April.

H. O. Marsh, Wichita, recently returned from a trip to South America, which was under the auspices of Medico, a service of CARE. Dr. Marsh, as visiting orthopedist at the 13th Annual Bogota, Colombia, Orthopedic Conference, delivered eight lectures at the conference held in April. He also lectured on "Hip Fractures in Children" to the local Orthopedic Society at San Jose, Costa Rica.



The Kansas Press Looks at Medicine

***Editor's Note.** In this section the* JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

LET'S RESPECT DEATH, TOO

Monday a 13-year-old boy was caught in a cave-in which stopped his breathing almost entirely for 30 minutes. Still, there was a spark left in him when rescuers dug him out. He was rushed to a hospital. Doctors put him on a breathing machine and he is now alive.

Alive in a manner of speaking, that is. For the lack of oxygen in his bloodstream during his crushing imprisonment destroyed his brain.

Neurologists said brain damage was "total." They gave his parents no hope that he could ever regain consciousness or even be able to maintain life without the artificial aid of the breathing machine and continuous intensive care, including intravenous feeding.

His parents discussed this hopeless assessment of their son's condition and decided there was no purpose to be gained by continuing the medical care. They thought it best that their son be permitted to die since there was no hope that he could ever live in any meaningful sense.

But their doctor would not accept their decision. He could not refrain from doing everything within his power to keep the boy alive, he told them, without violating his ethical code.

Thursday they received a bill from the hospital for the first two days of their son's care. It was for $600.

* * *

As medical science improves its techniques for maintaining life in human bodies despite the most horrendous of wounds or debilitating illnesses, the question of when such elaborate care should be stopped in the name of good sense and compassion raises itself more and more frequently.

There will be few reading this newspaper today who don't have first-hand knowledge of a person close to them who is being kept alive this very day by the amazing efficacy of medical science—but who is unaware at best and resentful at worst of the fact.

Most of these victims are elderly. They have lived their lives and have laid down to rest only to have science forbid them their final sleep.

It is a Godless, inhuman definition of life which drives us to such perversity.

It is demanded of us that we do all we can to preserve human life when there is the faintest hope that the individual can be of some use to himself.

But the same moral considerations which set this imperative would also seem to insist that death be permitted to occur when that hope is gone.

This is not arguing for mercy killing. It is arguing for compassionate neglect. There is a vast difference between the two ideas.

Euthenasia justifies ending the lives of those who have a terminable illness and are in great pain, those who have entered a permanent unconsciousness and can only maintain life artificially and other such hopeless cases. It can be defended, in my opinion, but I do not choose to do so here.

What I do propose is that when death is inevitable and an individual has lost all conscious contact with life and there is no hope that contact can be regained by him then it is perverse to force his body to continue to function through mechanical and medical means.

The doctor need do nothing but—do nothing.

This vexing problem is just one more example of how our technology has outpaced our philosophy. We have ignored the awful responsibility of defining life in this context thus far. We won't be able to postpone meeting this need much longer.—*Iola Register,* April 26, 1968.

KANSAS STATE DEPARTMENT OR HEALTH
TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in March, 1968 and 1967

Diseases	March 1968	March 1967	March 5-Year Median 1964-1968	January-March Inclusive 1968	January-March Inclusive 1967	January-March Inclusive 5-Year Median 1964-1968
Amebiasis	—	1	—	3	4	2
Aseptic meningitis	—	—	—	—	—	—
Brucellosis	—	—	—	—	—	—
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	1	—	—	1	1
Encephalitis, post-infect.	—	—	*	1	—	*
Gonorrhea	369	278	269	984	902	728
Hepatitis, infectious	21	15	21	70	49	70
Measles (Rubeola)	—	*	*	7	*	*
Meningococcal meningitis	—	—	—	12	1	4
Mumps	247	*	*	508	*	*
Pertussis	—	—	1	—	—	2
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	1	2	2
Rubella (German Measles)	7	*	*	68	*	*
Salmonellosis	14	29	17	47	47	47
Scarlet fever	1	11	11	18	44	44
Shigellosis	7	2	7	11	7	20
Streptococcal infections	392	432	324	1,013	1,079	1,013
Syphilis	104	62	85	267	242	256
Tinea capitis	4	7	4	19	13	14
Tuberculosis	29	18	23	62	54	59
Tularemia	—	1	—	1	5	1
Typhoid fever	—	—	—	—	—	—

* Statistics not available

FIFTH DISEASE PRESENT

Within one week this spring, case reports of erythema infectiosum were received from widely-separated counties. Typically, the onset was described as sudden, with a recurring malar flush, followed by a bright-red maculo-papular rash.

The disease is occasionally accompanied by a low-grade temperature and itching, but usually the child is not ill or does not feel sick. Lymph nodes are not enlarged. Leucopenia occurs at first, followed by a slight leucocytosis with relative increase in eosinophils and lymphocytes.

The incubation period is 6-14 days and is without prodromal symptoms. The disease may last from three days to two weeks.

Erythema infectiosum is an innocuous disease of little known importance except in the differential diagnosis of other viral infections of similar nature. Concern has been expressed by parents and school nurses regarding the need for isolation of these cases. Because of its innocuous nature and extreme communicability, it seems unnecessary to require isolation. However, children with febrile reactions or other complications should, of course, be kept at home.

SUPPORT KaMPAC

1968

Obituaries

GUY E. FINKLE, M.D.

Dr. Guy E. Finkle, retired McPherson physician, died at his home on April 9, 1968. He was 70 years old.

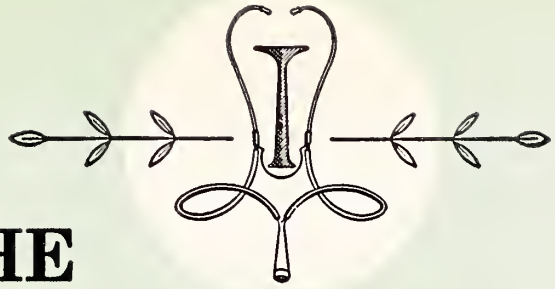
Dr. Finkle was born on March 4, 1898, at Galva, Kansas. He attended Emporia State College, from which he later received the Distinguished Alumnus Award for meritorious service, and the College of Emporia. He received his medical degree from the University of Kansas School of Medicine in 1931. He was a veteran of World War I, and a member of numerous medical, civic and fraternal organizations.

He is survived by his wife and a daughter.

WILLIAM G. WESTON, M.D.

Dr. William G. Weston, 67, Arkansas City, died on April 27, 1968.

Dr. Weston was born at Fayetteville, Arkansas, on July 13, 1901. He was graduated from the University of Louisville School of Medicine in 1928 and began his medical practice in Arkansas City in 1933. Dr. Weston was active in community affairs. He was particularly interested in the industrial growth and expansion of the area, and devoted much time to the Industrial Committee of the Chamber of Commerce. He also served on the hospital staff and worked for the improvement of the local hospital facilities.

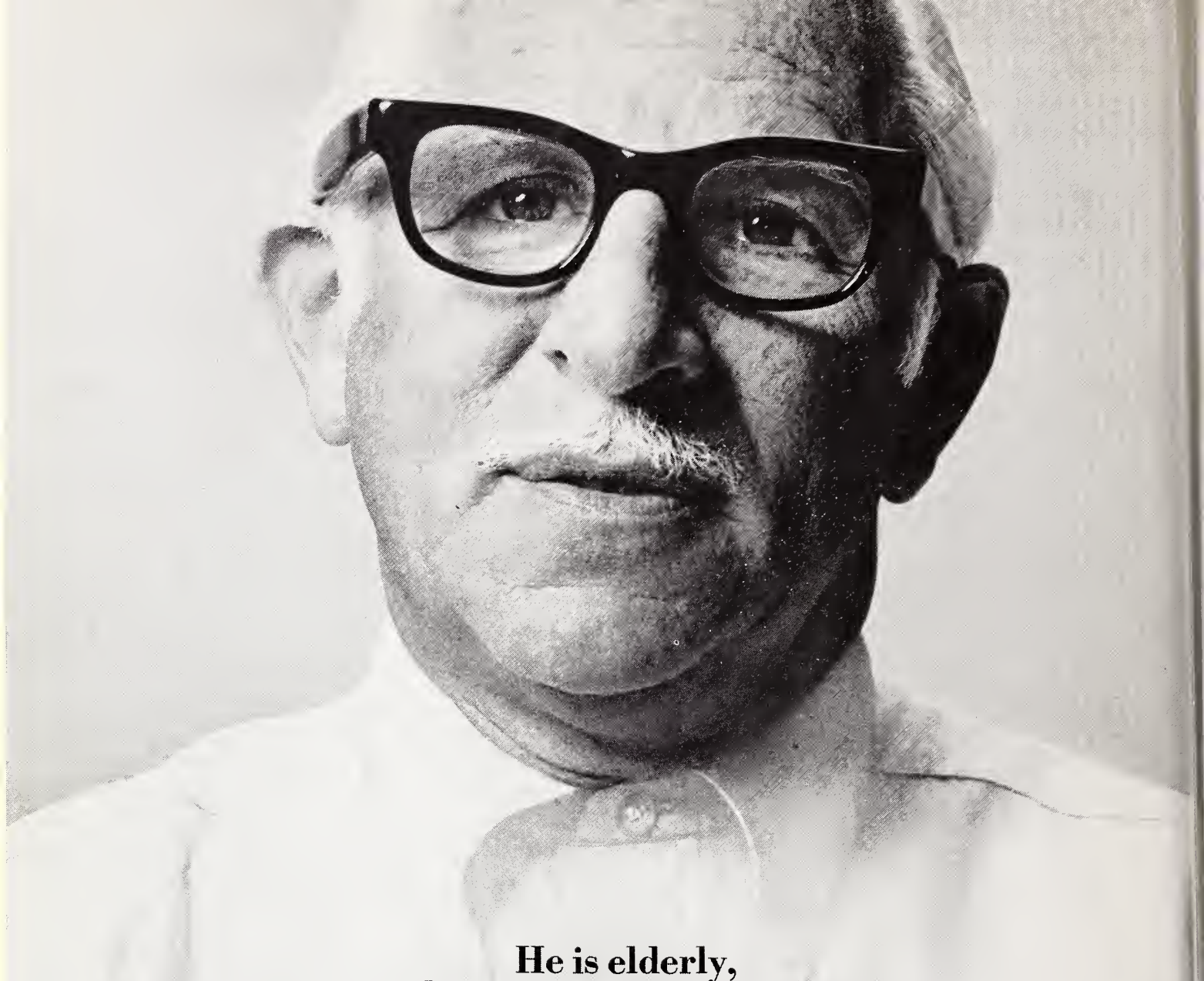


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JULY
1968

VOL LXIX
NO VII

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Precautions: Overgrowth of nonsusceptible organisms may occur. Constant observation is essential. If new infections appear, appropri measures should be taken.

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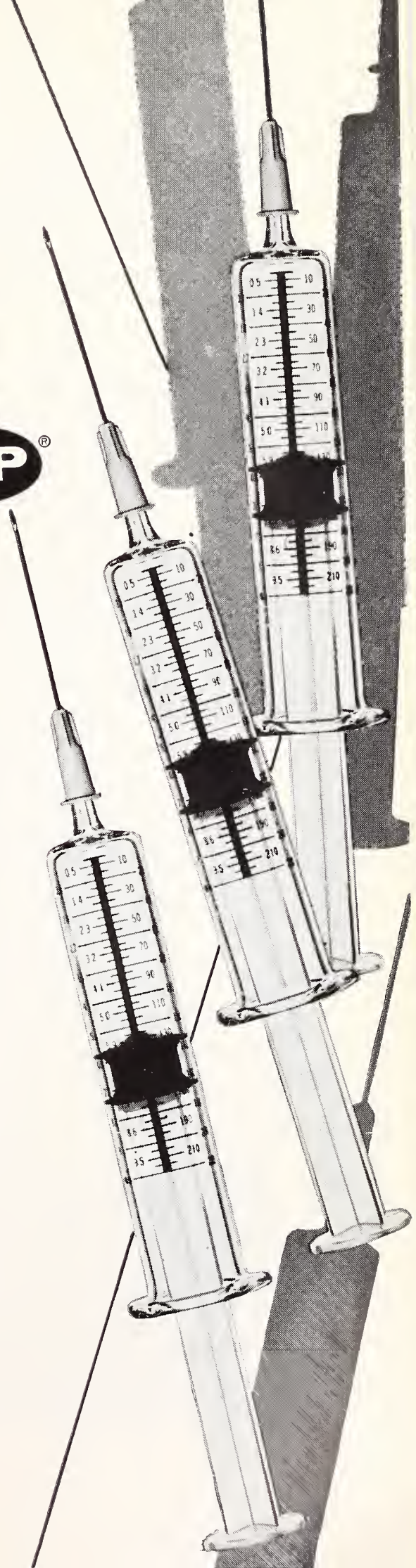
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Volume LXIX, Number 7—July, 1968

The JOURNAL of the KANSAS MEDICAL SOCIETY

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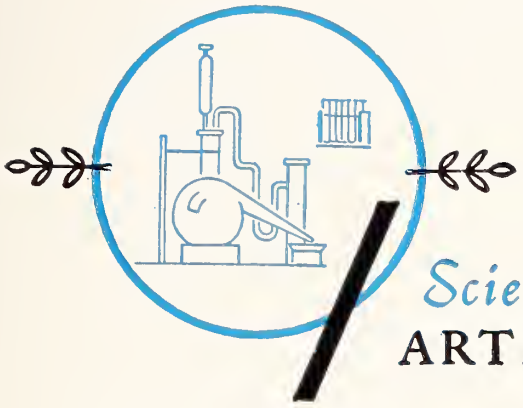
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Spina Bifida and Hydrocephalus

*Reflections on the Problems of Spina Bifida and Hydrocephalus**

A. N. GUTHKELCH, M.A., M.Ch., F.R.C.S., *England*

IT IS A GREAT PLEASURE and privilege to be asked to deliver the annual lecture which is such a well-conceived memorial to Kansas City's first neurosurgeon. By way of tribute to his original spirit, I propose to tell you something of the development of my interest in two problems which never seemed to me to be less worthy of investigation because no one could begin to imagine an ideal solution, and more than one neurosurgeon of world rank had confessed himself baffled by them. I refer to spina bifida and hydrocephalus; what follows is a short account of how I came to take an interest in these conditions, of the views which, after 20 years, I have come to hold about their management and prognosis, and of what I believe to be the directions in which one might look for further progress.

In 1947 I was appointed Honorary Neurosurgeon to the Royal Manchester Children's Hospital which was one of the largest voluntary children's hospitals in Great Britain with its consultants serving a population of two and a half million. It had something of a pioneering tradition, for nearly 100 years ago, with remarkable foresight and with the approval of Florence Nightingale, its Board of Governors moved the In-patient division of the hospital away from the grime of 19th century Manchester to what was then the village of Pendlebury, five miles away. In 1947 it became the first children's hospital in Great Britain to open a full neurosurgical department, instead of transferring neurosurgical cases to the appropriate wards of a general hospital.

The Management of Spina Bifida

Twenty years ago, like the majority of my colleagues, I agreed with Drs. Ingraham and Matson in believing that it was unjustifiable to submit paraplegic spina bifida infants to any sort of early surgery because it was clear that they were permanently crippled and that their chance of surviving to adult life without developing hydrocephalus was very limited. But as Ingraham and Matson also pointed out, there remained a considerable place for the palliative and supportive treatment of the survivors; consequently the fact that no neurosurgeon could enable the worst spina bifida children to walk should never have been an excuse for averting our eyes from them altogether.

At the Royal Manchester Children's Hospital our attitude was that on the one hand we would neither reject for such treatment, including regular surveillance, any infant suffering from a deformity of the central nervous system who could at least be regarded as a sentient human being, nor would we consciously make such cases central to our practice. Such a policy

* The Teachenor Memorial Lecture, 1967, delivered by Mr. A. N. Guthkelch, Consultant Neurosurgeon, Hull Royal Infirmary, England; formerly Consultant Neurosurgeon, Royal Manchester Children's Hospital.

cannot be conducted single-handedly. It is a pleasure to acknowledge here the generous measure of assistance and encouragement which I have always received from the orthopaedists, the paediatricians and the urologists of the Royal Manchester Children's Hospital.

In any discussion of spina bifida, the focal point must inevitably be the problem of myelocele, the treatment of simple meningocele and of closed myelomeningocele being relatively straightforward problems. Twenty years ago, the management of myelocele cases was frankly haphazard. If hospitalized early, they were usually kept out of sight and a fatal issue was hoped for. Most of them developed hydrocephalus. Seeing them relatively late, we were at first mainly concerned with the control of the latter. Ventriculo-ureteric drainage was described in 1949, ventriculo-mastoidostomy and ventriculo-peritoneal drainage were suggested soon afterwards. But all these operations had serious disadvantages and in our clinic we soon got to the stage at which the large number of return cases seriously interfered with the treatment of other conditions.

In 1953 I attended a meeting of the Society of British Neurological Surgeons at which Dr. Robert Heimburger of Indianapolis suggested that the logical way of treating myelocele was to regard it as analogous to an open wound of the spinal cord and therefore to close it as soon as possible. On re-surveying the brief trial which I gave to this procedure in the mid-50's and reported in 1962, it is obvious that the vital importance of the time factor was never appreciated. Believing that the object was simply to operate within a few days of birth, I secured a very mixed bag of results in which the frequency of infection with consequent fatal meningitis overshadowed two very remarkable cases in which movement returned to pre-operatively paralyzed limbs, these cases being those which were operated upon within a couple of days of birth. If only there had then been available the methods of control of infection which we have today, the babies might have recovered with good function in their legs, and we would have realized the advantages of immediate surgical intervention in these cases. But they died and the opportunity was lost.

Luckily, by 1961 a team of workers in Sheffield, Drs. Lorber, Sharrard and Zachary, had begun a controlled trial of immediate closure of myelocele in which they showed that there was more chance of preservation of leg movement by immediate operation than if the lesions were only repaired after the bare area had been allowed to epithelialise spontaneously. It is unfortunate that their first published series showed a significantly higher mortality than we in Manchester had been achieving by a more conservative policy, for this delayed my own full acceptance of the new technique by at least a year, and I suspect that there may have been a number of colleagues who, faced with the same problem—life or limb—could only have acted as we did. But today these hesitations are behind us. I am now satisfied that the policy of the immediate operation with preservation of all possible neural tissue is normally the correct one. Without having conducted a formal controlled trial in the statistical sense, with complete randomisation of cases, we were able to study a series in which the decision for and against immediate operation depended solely on the day of the week on which they were admitted to hospital. Dr. Laurence of Cardiff had shown that in the absence of any planned surgical activity, the total situation was a grim one, a bare 30 per cent of all patients surviving to puberty. We found that if the operation is performed within 48 hours of birth, two thirds (68%) of all cases survive to the age of one year, whereas no other policy permits more than 55 per cent to do so. Thereafter the mortality rate is relatively low. These results are essentially similar to those which have recently been published by Lorber and his colleagues in Sheffield. Similarly, in respect of infection, closure within 48 hours is as safe a policy as any, with an incidence of just under 10 per cent, though in this respect waiting for full epithelialisation of the lesion, followed by secondary repair, yields as good results.

It has been in respect of function in the lower limbs that our series has been most interesting. We had realized for some time that midwives and obstetricians were claiming to see movement in the lower limbs of certain newly delivered infants suffering from myelocele whom we had found to be totally paraplegic on admission to hospital. My Senior Registrar, Dr. Serrats, therefore constructed a record of the situation at three critical times; namely, delivery, admission to hospital, and three months after surgery. We chose this last time because, in agreement with our colleagues in Sheffield, we believe that by then the ultimate pattern of preservation of function is clearly established, even though there may occasionally be late deterioration.

The results are fairly clear-cut. First it is plain that certain types of paralysis at birth indicate either a failure of development or perhaps (as Warkany suggested) a pre-natal degeneration of the exposed neural plaque to the point at which no return of function can be expected whatever surgical policy is adopted. Second, where movement of the legs is observed at birth, there is at least some chance that it can be preserved if surgical intervention is performed within 24 hours. The prognosis is—as one might imagine—better if the movement is still present at the time of operation, but even a pre-operative deterioration to complete paraplegia does not preclude all chance of later recovery. Our series has now en-

larged to 33 cases of thoracolumbar myelocele who were known to have exhibited limb movement at birth. There were two who recovered completely and six who recovered partially from a pre-operative condition of total paraplegia while a further two cases regained all that they had lost between birth and operation, and four maintained their pre-operative state, but without showing actual improvement. To these should be added six incompletely paralyzed cases whose condition remained unchanged throughout. Adding these figures together, one finds that of 33 infants suffering from the sort of myelocele in which a total paraplegia used to be accepted as the likely end result, 20 (60%) maintained such leg movements as they had shown at birth either completely or to a significant extent, given that the lesion was closed within 24 hours, and that in no case did the final defect of function exceed that which had been noted immediately before the operation. We are, therefore, satisfied that in all such cases it is a matter of the utmost urgency to operate at the earliest possible moment.

We think that in assessing the prognosis it is important to make as exact a pre-operative neurological evaluation as possible. In cases of thoracolumbar myelocele a state of total incomplete paralysis of the limbs or one of spasm-in-flexion (in which the legs are held in the "frog" position) usually leads to good eventual limb function, whereas flaccid paraplegia does not improve.

There are, of course, other methods than those of direct clinical observation which are prognostically helpful. The Sheffield workers have for years made detailed studies of the Faradic responses of the leg muscles and claimed that those in which there are signs of innervation at the time of the operation will show useful function later. Electromyographies are not easy to perform or to interpret in newborn babies, but we have the impression that absence of activity in the pre-operative record is of bad prognosis, and Chantraine and his colleagues have published similar findings. On the other hand, it is quite normal for the post-operative record to be completely flat for some days, and this does not indicate that the cord has been permanently damaged by the operation.

We are not able to present any firm conclusions about sensation in relation to ultimate limb function. Some babies who have a sensory level to pain as high as the mid-thoracic segments can undoubtedly move their legs. Few of our children are old enough to be able to cooperate in tests of posterior column function, but it seems that some have learned to walk without having any accurate sense of position in their lower limbs. On the other hand, a completely deafferented limb tends in a baby, as in an experimental animal, to be completely neglected and held immobile. Consequently, there is a place for early and continued physiotherapy in the management of these cases.

The lesson seems to be that on a regional or municipal level we must be prepared to deal with cases of myelocele within an hour or two of birth, for this is sound economics as well as sound medicine. The cost to the community of the care of paraplegics is very large indeed. There is a case for arranging delivery at a centre equipped for paediatric surgery of any woman who is either known from radiological examination to be carrying a spina bifida baby, or who from genetic predisposition or acquired illness is believed to have a particular risk of this.

Of course, the battle for the life and health of babies with myelocele does not end with the repair of the spinal defect. Indeed, it has usually only just begun. We all know to our cost that they have at least an 80 per cent chance of developing hydrocephalus within the next month or two, a subject which will be discussed later in this lecture. Meanwhile, I would wish to draw your attention a second and less well-known danger into which the new born spina bifida baby can fall; namely the development of multiple lower cranial nerve palsies due to medullary compression. Dr. Doran and I noted some years ago that this condition could develop and even progress to a fatal termination after the institution of adequate ventricular drainage, and it was the independence of the syndrome from any actual increase in intracranial pressure which led us to coin the term "encephalocranial disproportion"; in other words, a state in which there was not enough room for the hind-brain in the infratentorial compartment of the skull, to describe the significance of the Arnold-Chiari malformation. This syndrome of medullary compression is of serious prognosis. We have treated it by decompression of the posterior fossa and upper cervical spinal canal in a small series of cases, but with only one complete and one incomplete recovery, and four deaths. My colleague, Dr. Florence Cavanagh, has described the condition from the point of view of the laryngologist. It is sometimes, but by no means always, associated with localized basal meningitis.

From the physical point of view, the rest of the story is one of teamwork, with orthopaedist, urologist, specialist in physical medicine, and paediatrician all playing a part. It is one in which the clinician must be both patient and inured to disappointment.

Remembering that so many surviving cases of myelocele have at one time or another shown evidence of hydrocephalus, one is fully entitled to ask whether their mental function is likely to be such as justifies the amount of time and effort that is being expended upon their treatment. I think that it is. In a group of survivors followed through to school

age, 40 per cent proved to be of normal intelligence, 25 per cent have gravitated to the bottom of a normal school, 25 per cent are subnormal but teachable by special methods, while only the remaining 10 per cent are wholly ineducable, with I.Q.'s of less than 50. It is interesting, and important from the point of view of advising early action by the urologist, to note that in our experience the teachers and children in a normal school are very tolerant of paraplegia, but considerably less so of the incontinence which may accompany it. It is more important that the spina bifida child should be reasonably clean and dry at the time when he enters school than that he should be able to walk.

Infantile Hydrocephalus

When I look back at the methods and attitudes which were necessarily adopted only 20 years ago by a neurosurgeon confronted by a case of infantile hydrocephalus, it seems to be through a window opening onto another, almost a prehistoric, world. There was choroid plexectomy, an operation which may have had value in the older child presenting with what we would now call reactivation of an arrested hydrocephalus, there was ventriculostomy, and little else. By 1955, discussion was centered mainly on the relative merits of methods of direct drainage from ventricle or theca into ureter, pleural or peritoneal cavity, but by 1960 the Spitz-Holter and Pudenz-Heyer valves had been widely publicized and it seemed that ventriculo-atrial drainage mediated by a valvular device of some sort had come to stay. Certainly it avoided on the one hand the serious and recurrent crises due to salt and water-loss that were such an alarming feature of transureteric drainage, and on the other, the intolerable burden of secondary operations which was often imposed by occlusion of the distal end of the intraperitoneal tubes, despite a wealth of ingenuity which was displayed by many surgeons both in the techniques of their placement and in the modification of their design. But unfortunately the Golden Age of ventriculo-atrial drainage was not of long duration, for nature does not take kindly to forcible correction, even when we do this with the best of motives. It was soon realized that elongations of the atrial catheter would inevitably become necessary as the children grow up, that veins whose lumen is reduced by the presence of a foreign body tend to thrombose, and worst of all, that normally harmless organisms, breeding in a chamber implanted in the body out of contact with the blood stream, will eventually give rise to a bacteriaemia which, despite its prolonged course, is ultimately lethal if not treated.

Surgeons embarked on a series of most ingenious modifications of technique amongst which I might select for mention Rickham's ventriculostomy reservoir for the installation of antibiotics. But even so it is not wholly surprising that recent issues of the *Journal of Neurosurgery* reveal some signs of a movement away from procedures designed to return the CSF to the blood stream and back to our old friends intrapleural or intraperitoneal drainage, though this time with a valve in the circuit.

At this point, it may be helpful to digress long enough to summarize my personal experience of 165 consecutive cases of ventriculo-atrial drainage using the Holter valve. My reason for presenting these is more to emphasize once again the necessity for a high degree of self-criticism in the appraisal of a new method of treatment than to claim any particular advance. Laurence has set the standards by which one can evaluate the efficiency of surgical treatment of hydrocephalus by a detailed follow-up of conservatively managed cases. As with spina bifida we have followed his actuarial approach, for any other is misleading or meaningless. In a condition like infantile hydrocephalus where the underlying lesion must remain untreated and there is a continuing risk of complications, it is useless to discuss mortality or morbidity unless they are related to length of survival. Our conclusions can be stated quite simply.

First, in conformity with the figures published by Foltz, it seems that operation endows the patients with a significantly greater chance of survival than does a conservative policy. It follows that any modification of method or technique which does not yield a further improvement must be accepted with reserve.

Second, there is a continuing necessity for revision operations in these cases. It declines from the sixth month after the original procedure to the end of the second year, but thereafter it tends, if anything, to rise slightly for as long as the cases have been followed; between the third and sixth years it amounts to about 10 per cent annually.

Third, despite the evidence that infantile hydrocephalus does not by any means always undergo spontaneous arrest, or to put it another way, that some at least of the surgically treated children become shunt-dependent, nearly two-thirds of the actual mortality after operation occurs during the first, and half the remainder before the end of the third year after the institution of treatment. The causes of death have been much the same in this as in any other series, and I shall not detail them here.

As to the intelligence of the survivors, it must be said categorically that our results do not show any great improvement in the distribution of I.Q. over those given by Laurence and Coates for their conservatively treated survivors. But, since our mortality is significantly lower and since Laurence and Coates have already made the point that the degree of physical disablement is inversely proportional to the I.Q. one can reasonably suppose that we are salvaging

some of the mentally and physically crippled cases who in their series died without treatment and therefore that adequate surgical treatment helps to preserve brain function. The fact that there are fewer survivors with I.Q.'s of less than 50 in our series as compared with Laurence's is in conformity with this suggestion. There is also evidence in our series, as in theirs, that the cause of the hydrocephalus is an important factor in the prediction of the eventual I.Q., and in the incidence of major complications.

Recently I have been interested in seeing whether I can discern any pattern in the evolution of treatment for hydrocephalus and if so in which direction it seems to be leading.

The first stage ended about 20 years ago. Until then all sorts of operations had been tried but most of them had proved only temporarily effective because of technological deficiencies.

The next phase was that of single drainage of CSF by means of plastic tubes from ventricle or theca to one or other body cavity. These were efficient—sometimes too efficient—but unphysiological in that the CSF was diverted into a place where it had no business.

We are now in, and perhaps approaching the end of, the third phase, that of constant pressure drainage through a valvular device with return into the blood stream. The immediate attraction of this method was that it re-established a true CSF circulation; but possibly in gratefully accepting this lesser disturbance of normal anatomy we may have tended to forget the quantitative physiological aspects of the problem. Ranschoff and Matthews have pointed out that if the secretion of CSF exceeds its absorption by as little as 1 ml per day, the result is going to be a serious degree of hydrocephalus within three months. The converse must also be true—that a very small excess of drainage over output will quite soon correct the situation.

Adams and Hakim have suggested that the effects of increased CSF pressure in causing brain damage may be related not only to the pressure itself but also to the size of the ventricular system upon which it acts, this work being in conformity with the demonstration by Bering of the importance of the pulse wave in provoking hydrocephalus. These observations may imply that once the initial phase of reduction of intracranial pressure is over and the size of the ventricles has returned more nearly to normal, only a small continuing rate of drainage is necessary.

Is it possible that rather as the children of the 1950's treated by valveless spino-ureteric shunts were in danger of death by dehydration, so some of those of the present generation are becoming shunt-dependent because in achieving adequate initial pressure reduction we have built too large a flow rate into our valve systems?

We still know relatively little about the limits of the normal intracranial pressure in infancy, and it seems likely that this must vary gradually rather than suddenly as the skull becomes a rigid instead of an expanding box. Yet the best that we practicing neurosurgeons can do so far in the control of an actual case of hydrocephalus is to replace a low-pressure by a medium-pressure type of valve at some arbitrary point of time and hope that our patient will accommodate to the sudden change, which mercifully he usually tends to do.

Plainly we need to give further consideration to the details of whatever drainage operation we favor. The evidence seems to be pointing the pattern of future development away from a constant pressure valve, and perhaps towards one in which both flow rate and opening pressure can be controlled externally. Ranschoff and Matthews have already made a preliminary communication of their work in designing a most ingenious valve which in principle consists of a pump which can be implanted under the scalp and through which CSF can be transferred at any desired rate from the ventricle to a venous sinus. The idea is that the moving parts of the pump are worked by bringing a rotating electromagnet into contact with the scalp immediately superficial to it. I understand that the difficulties of adapting this particular device for clinical use may be rather greater than was originally hoped, but the underlying idea is sound.

Meeting the Challenge

So far I have dealt mainly with the treatment and prognosis of the individual case. This is not only a matter of logic in that individual cases must be treated in order to evaluate a series, but also one of moral conviction. Concern with the plight of the individual is the paramount consideration of Western medicine as it is of Western religion and philosophy. Nonetheless, from the time that the sick were first gathered together under one roof it has been recognized that some degree of organization is necessary even to such a pack of rabid individualists as ourselves—the clinicians.

The question is, therefore, how we can best handle the problem of congenital deformity of the nervous system—in which I shall include all sorts of infantile hydrocephalus—in such a way as to deploy our resources most usefully for the individual case. Plainly no single specialist can have the know-how to deal with all possible aspects of the problem. We need neurosurgeons, paediatricians, orthopaedists, urologists, specialists in rehabilitation, backed up by anaesthetists, radiologists, pathologists and many others. All these people must gain a sufficient experience to speak and act with authority, and they must have the help and support of trained nurses and social

workers of similar calibre. On the other hand, I doubt the wisdom of allowing a single problem of this sort to assume overwhelming importance in the professional life of any individual, still less of letting the paediatric department of a hospital become swamped with cases of congenital deformity.

Allowing for the necessity to make provision for revision operations for hydrocephalus, for urological and orthopaedic procedures and so on, I would suggest an allowance of one paediatric bed in an acute hospital for every three expected annual new cases of major congenital deformity of the nervous system, and one bed for every six cases of hydrocephalus of other origin. The provision of long-stay accommodation can be deduced from what I have already said about the eventual status of spina bifida and hydrocephalic children. The essential point to remember is that if any individual department takes on a load of, say, 20 new serious spina bifida cases a year, then after five years it will be dealing with the problems of some 65 survivors, and this in turn implies an average of three or four weekly out-patient consultations, some of them lengthy, for the neurosurgeon alone. In 10 years the numbers will almost have doubled, and even thereafter there will be some increase due to the necessity for continuing occasional supervision of the grown-up survivors. Moreover, the management of a clinical situation which presents such various manifestations as a case of spina bifida or hydrocephalus, poses the sort of problem which, as I have already said, needs a team rather than one man for its solution.

These considerations imply the existence of a centre for the management of congenital deformity in every large conubation, and that no such centre can be expected to serve more than a million people; they are also an argument for a policy of sufficient collaboration between the various voluntary and statutory bodies concerned with such problems to ensure that the effort is not unduly dispersed.

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POISON IVY

Poison ivy season is here again.

You may have handled poison ivy last year and escaped without an itch, but don't push your luck, says a pamphlet from the American Medical Association.

No one is permanently immune to poison ivy, oak or sumac.

Your next meeting with this pesky plant could take place in your own yard, as well as in the woods and fields. Poison ivy, oak and sumac have appeared in city gardens; and poison ivy has been known to form a beautiful growth up the side of a house. Poisonous oils from these plants can come your way in the smoke from a neighbor's burning trash or on your dog's coat.

If you can detect poison plants, you can often avoid them. Poison ivy and its close kin, poison oak, are three-leaved plants which may grow as low bushes or climbing vines. They may be mixed with honeysuckle and other climbers. Poison sumac, an eastern swamp plant with seven to thirteen leaflets and small white berries, usually grows as a shrub.

If you have been exposed, carefully remove your clothes and thoroughly wash all affected areas with warm water and soap; then sponge with a 50 to 70 per cent alcohol solution. Using rubber gloves, clean your clothes in an oil solvent and soapy water. Then dry them in the sun.

Ivy, oak and sumac poisoning start with itching and redness within a few hours to several days after exposure. Then watery pimples appear. There is no cure for the big itch. Wet dressings of boric acid or Epsom salts solution bring some relief. Calamine lotion also reduces itching. Call your physician when the inflammation is extensive.

If you know that you will be near poison plants or working with them, have your druggist make a 10 per cent sodium perborate ointment and apply on exposed skin. After contact with the plant, wash off ointment and scrub all clothing—even shoelaces.

Tension Headache—

—*Treatment With Fiorinal*

CHARLES K. SHOFSTALL, M.D., ***Kansas City, Missouri***

THE MOST FREQUENT TYPE of head pain bears the descriptive label of tension headache. As the name implies, the trigger mechanism is tension, the ubiquitous hallmark of modern society.

Somewhat surprising is the incidence of tension headache in a practice confined to the eye, ear, nose and throat, but this is readily understood when one realizes that patients with headache "make the rounds" from physician to physician. Having undergone numerous physical examinations, laboratory tests and even EEG's without adequate benefit, they consider it a natural step to have their eyes, ears, nose and throat checked.

Observations derived from the treatment of patients with tension headache indicate that the taking of a careful history can be the single most important element in establishing the diagnosis of tension headache. Careful probing has revealed that most patients are able to relate their headaches to periods of stress, occasioned by such precipitating situations as family dissension, money problems and office tensions. The time of day may be instructive, with the afternoon being the most frequently cited for tension headaches to occur. More revealing are statements such as, "I get a headache when the children start to act up" or "I get a headache whenever I have an argument with my husband." The cause of headache is not as readily ascertained in men. Executives and professional men tend to blame excessive reading, long hours at the wheel of an automobile or lack of sleep, but questioning often evolves a relationship between their headaches and business or family tensions.

Further clues to the diagnosis of tension headache can be gained from the patient's description of the head pain. This is not well-defined, but is rather described as being "all-over," with the pain radiating from the frontal or temporal area to the neck. The answer to the question, "Are you comfortable when you are reading?" can differentiate between headache due to tension and that due to eye strain. The latter is suggested by the comment, "I read a short while and get a headache."

Equally revealing is the demeanor of the patient during the process of history-taking. The patient with tension headache generally exhibits signs of tension such as nervousness, playing with a ring or constantly moving about in her chair. Moreover, such a patient is eager to recount a catalogue of complaints, in contrast to the usual reticence one finds in the patient with vascular headache.

A complete physical examination, together with specific laboratory tests suggested by the history and examination, is conducted to rule out organic pathology. Only rarely do these reveal any abnormalities which are directly related to headache.

A good history and careful observation of the patient are the two most useful aids in the diagnosis of tension headache. The combination of practical counseling and Fiorinal for symptomatic relief has proved to be consistently effective in the management of patients with tension headache.

Treatment

The first step in treatment should be an effort to explore the causes of his (or more likely, her) headaches and to suggest ways in which the patient might try to combat them. If executed with tact and a sympathetic ear, one can make patients recognize that their attacks are brought on by stress or tension. With this recognition, they usually lose the fear, expressed or not, that the headaches are caused by a brain tumor or other serious disease. Experience has shown that reassurance and the use of a drug that provides prompt relief of the head pain are the two most important requisites for satisfactory management of patients with tension headache.

An earlier study[1] had shown that the failure of headaches to respond to treatment with ordinary analgesics provided a useful clue to the diagnosis of vascular headache. This brought to light another observation, the efficacy of the analgesic-sedative combination, Fiorinal,* in relieving non-vascular headaches. In fact, the consistently greater relief obtained with Fiorinal than with aspirin or APC compound suggested that a distinction could be made between it

* Each tablet contains butalbital 50 mg, aspirin 200 mg, phenacetin 130 mg, caffeine 40 mg.

and "ordinary analgesics," a conclusion that at times could be applied to codeine as well.

Experience accumulated with the use of Fiorinal in over 150 patients has revealed a high degree of consistency in relieving headaches. The usual dose has been one tablet given as early in the attack as possible and repeated, if necessary, in three to four hours. For more severe attacks or for headaches treated late, an initial dose of two tablets has been more effective. The following case reports serve to demonstrate the type of patient in whom the drug was used to advantage.

Mrs. L.E.B., a 38-year-old mother of two children, presented with a history of headaches throughout most of her adult life. These attacks had become more frequent and severe of late, coincident with a change in employment as a secretary. An internist had ruled out any organic basis for the headaches. Eyeglasses had been prescribed, but did not help. The patient described her headaches as beginning in the early afternoon and producing a generalized pain extending from the frontal to the occipital region. Aspirin and other popular headache remedies gave little or no relief. Failure to respond to ergotamine with caffeine aided in establishing a diagnosis of tension headache. In addition to counseling, Fiorinal was prescribed with instructions to take two tablets at the onset of the headache and one tablet one-half hour later if not relieved. Two or three tablets have been adequate in providing consistent relief of her headaches, a result that has generated a change in outlook for this patient as well.

Mr. R.E.H., 28-year-old father of three children, first complained of headaches five years ago while in service. They occurred at least once or twice a week and lasted from one to three hours. Questioning revealed that the attacks were often related to pressure connected with his position as an accountant for a large corporation. Previous therapy, including salicylates, various prescription analgesics as well as a course of prophylactic treatment with methysergide, was inadequate. This response and the history led to a diagnosis of tension headache. The use of Fiorinal, two tablets at the onset of pain and one tablet in one-half hour if not completely relieved, has yielded excellent results when headache occurred.

Discussion

The significance of stress or emotional factors in the production of tension headache is well established. What is not so well recognized is that these may give rise to involuntary repression of hostile or aggressive feelings and the generation of contraction of muscles in the neck with resultant referral of pain to the head. This may be likened to the clenching of fists or gnashing of teeth as release phenomena in other individuals.

Such a course of events indicates that treatment of tension headache requires more than an analgesic. This has been confirmed in clinical practice through the use of Fiorinal, a preparation designed to relieve both the pain and the tension causing it. In fact, it meets admirably the criteria set forth for such a treatment, "The ideal analgesic for the treatment of tension headache should be effective at levels not impairing sensorium or vital functions, and it should be free of addicting properties, have negligible side effects or toxicity and be simple to administer."[2] Evidence to support this as an accurate description of Fiorinal has been provided in other reports[2-4] and by experience related here.

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Elements—Tissue—Life

Trace Elements in Nutrition and Metabolism: A Review

LEITHA D. BUNCH, M.A.*, *and*
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Introduction

DURING THE LAST 40 YEARS a steadily increasing number of elements have been found to be constantly present in living tissue. Definite biological function has been assigned to some of them. The term "trace elements" has been applied to those elements which occur, or which function, in very small amounts relative to the amounts of the main constituents of the tissues. The term "trace" came into use because of the original difficulty in quantitatively measuring the concentration of the element concerned. Other investigators have used the term "minor elements." Both of these terms are bad, for "trace" implies that we do not know how much is present; "minor" implies that the elements play a minor or unessential role in metabolism. Other terms used are "oligo-elements" or "oligo-minerals." The terms "micro-elements" or "micro-nutrients" have had the support of some leading international conferences. Choose whichever term suits you, but the term "trace elements" is most commonly used and is the term used here.

The major elements in higher animals are carbon, hydrogen, nitrogen, oxygen, sulfur, phosphorus, calcium, potassium, sodium, chloride and magnesium. The trace elements always found in higher animals are iron, copper, manganese, zinc, iodine, cobalt, molybdenum, nickel, aluminum, chromium, titanium, silicon, lead, rubidium, lithium, arsenic, fluorine, bromine, selenium, boron, barium, and strontium. We now are faced with the problem of finding out if all of the above named trace elements are really playing a metabolic role in the animal or are some of them simply constantly present due to their constant occurrence in the soils, foods, water and gaseous atmosphere, with which the animal is constantly associated.

We now have better means of measuring the concentration of many of these elements, as by the use of atomic absorption spectrophotometers. The use of radioactive isotopes further contributes to the study of trace elements. In feeding experiments we have more highly purified nutritionally adequate diets. The use of non-metal animal cages facilitate studies of trace elements in animals. Advances in the use of purified diets could not be made until vitamin research had advanced sufficiently to make it possible to supply the essential vitamins without also adding the trace mineral under study. It is now possible to supply the animal a synthetic (chemically pure) diet, omitting almost entirely the mineral under study. Milk, because of its palatability, its richness in many dietary essentials and its natural deficiency in trace minerals has proven to be the basis of many studies on the role of particular trace elements in nutrition and metabolism.

With the advent of newer laboratory techniques—spectrophotometry, auto-analyzers—the trace elements and their relation to tissue physiology loom again as important horizons of new knowledge.

General Mode of Action of Trace Elements

All the essential trace elements, about which we have any fund of information, have been found to function as catalysts involved in the action of hormones, enzymes or coenzymes. It is not possible to measure the specific function of a trace mineral in an enzyme system by observing the whole animal. By observing the whole animal one may learn that certain aberrations from ideal normal are evident but to arrive at the specific role of the mineral, *in vitro* studies usually must be done. Another facet of the study of trace elements is the interdependence of the trace elements themselves, as well as the interdependence of all the other nutritional entities playing a part in metabolism.

Given at the Kansas-Missouri Dietetic Conference, May 5, 1966.

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G. C. Cotzias[1] says that we tend to look at the cell as if it were a glass of water. He suggests that it would be better if we looked at the cell as an onion, with many membranes, all of them with their own peculiarities. He reminds us that we must remember that these metals move in and out of cells and perhaps it would be better to talk about concentrations of a mineral per gram of tissue per unit of time.

Copper

In 1924 Hart and associates[3] observed that copper was essential for hemoglobin regeneration in rats suffering from milk anemia. Recently there has been much interest in copper metabolism. Several excellent reviews of copper metabolism and nutrition have been published.[4-6]

Human serum contains approximately 100 μgm of Cu/100 ml. Most of the serum copper is as ceruloplasmin. One molecule of ceruloplasmin contains eight atoms of copper. Ceruloplasmin is an α_2-globulin, which easily oxidizes p-phenylenediamine *in vitro*. Its physiological substrate is not known. About 5 per cent of serum copper is loosely bound to albumin. A third fraction of serum copper is bound to amino acids. The copper bound as ceruloplasmin is not exchangeable *in vivo*. The amino acid copper complexes are in equilibrium with albumin-copper. Albumin-copper is in rapid equilibrium with tissue copper.

Several tissue copper proteins are known: cerebrocuprein I from brain, erythrocuprein from human erythrocytes, and hepatocuprein from adult liver. Each of these proteins contain about 0.3 per cent copper. Neonatal hepatic mitochondrocuprein, which makes up a major portion of the copper accumulated physiologically in newborn liver, contains a copper-protein fraction with 3 per cent copper. This high copper content suggests that it may serve as copper storage in the immature animal.

Many of the biological systems in which copper occur contain more than one metal atom. These metal atoms are coupled together in electron transport systems, as Fe^{++}-Cu^{++} in the cytochrome chain. Other copper containing enzymes in mammals are ascorbate oxidase, polyphenol oxidase (tyrosinase), uricase and monamine oxidase.

The normal American diet contains 3-5 mg copper per day. The daily minimal requirement of copper for the adult man is about 2 mg/day. Naturally occurring copper deficiency has not been proven in man. There are a variety of clinical conditions which develop in other species as a result of dietary copper deficiency: anemia, depressed growth, bone disorders, depigmentation of hair, fur or wool, abnormal wool growth, demyelination of the spinal cord, fibrosis of the myocardium, and diarrhea. Underwood[3] presents these various copper deficient syndromes in detail.

Serum ceruloplasmin is usually low in humans with Wilson's disease. There are many pathologic states in man that accompany high serum ceruloplasmin: infectious states, thyrotoxicosis, rheumatoid arthritis, disseminated lupus, myocardial infarction, Laennec's cirrhosis, hemochromotosis, leukemia, many malignant tumors, sickle cell anemia, untreated pernicious anemia, and aplastic anemia.[7] Ceruloplasmin is also elevated in pregnancy.

Schubert[1] presents an interesting theory for the mechanism of the antipyretic agents. He suggests that fever is associated with the release of copper from an intracellular site into the plasma and that antipyretic agents transport this copper back to the cellular site.

Wilson's disease is a rare inherited disease transmitted in an autosomal recessive pattern. Copper absorption from the gastrointestinal tract is greater than normal. Since the disease is not one of nutrition, it will not be discussed here.

In the normal metabolism of both ruminant and monogastric animals, there is antagonism between molybdenum and copper. Sheep on a low molybdenum diet rapidly accumulate copper in their livers, resulting in copper toxicity. Conversely, if the diet is high in molybdenum, sheep may develop a clinical copper deficiency. Molybdenum toxicity can be corrected by increasing the copper in the diet and copper toxicity by increasing molybdenum.

Zinc

Zinc has been shown to be essential for animals. Several zinc metalloproteins are known. Changes in blood zinc levels in diseases of man have been studied.

The human adult body contains from 1 to 2.5 gms of zinc. The normal intake of zinc is 10 to 15 mg per day but it is not known how much is absorbed. Human blood contains 700 to 800 μgms per 100 ml; an average of 120 μgms are in 100 ml of plasma. Erythrocyte content of zinc is between 1.2 and 1.3 mg/100 ml of packed red cells. Leucocytes contain 25 times as much zinc per cell as do erythrocytes.

Most of the zinc in red cells is in the metalloprotein enzyme, carbonic anhydrase. Lesser quantities of zinc are in zinc-containing hydrogenases. Carbonic anhydrase is found in body tissues other than erythrocytes: gastric mucosa, renal cortex, pancreas, salivary glands and most parts of the central nervous system. There is no significant reduction in the activity of carbonic anhydrase even when animals are severely zinc deficient.

In normal persons, all the zinc in erythrocytes is as carbonic anhydrase. In most patients with anemia

other than pernicious anemia, both the zinc and carbonic anhydrase activity of blood are lower than normal and proportional to the decrease in hematocrit. In pernicious anemia, erythrocyte zinc and carbonic anhydrase per unit of red blood cells is elevated above normal.

Serum zinc is decreased in patients with postalcoholic liver cirrhosis. Such patients excrete abnormally high quantities of zinc in their urine. The zinc content of livers of patients dying with postalcoholic cirrhosis is also decreased.

There is no convincing evidence that zinc is essential to the formation of either glucagon or insulin. No significant difference in the zinc content of the pancreas in normal and diabetic patients has been found. Zinc blood levels in diabetic patients are normal. No correlation has been found between plasma zinc levels and the response of diabetic patients to insulin.

One possible example of zinc being an essential nutrient to man has come from Iran and Egypt. There is a syndrome consisting of iron deficiency anemia, hepatosplenomegaly, dwarfism, and hypogonadism occurring in males in these countries. Evidence that these patients are zinc deficient are as follows: plasma zinc is low, plasma zinc turnover is greater than normal, excretion of zinc in stool and urine following Zn^{65} administration was less than in control subjects and the zinc content of the hair of these dwarfs was low. It is believed that growth retardation, hypogonadism, and partial adrenal hypofunction may be due to hypofunctioning of the anterior pituitary, probably as the result of zinc deficiency.

Cobalt

Cobalt serves its only known biological function as a component part of vitamin B_{12}. Cobalt deficiency in animals seems to be a deficiency of B_{12}. Cobalt is also of medical interest because pharmacological doses stimulate erythropoiesis. A reticulocytosis occurs, followed by rises in the number and volume of erythrocytes and in hemoglobin. It appears to act by producing a state of anoxia, possibly by binding -SH compounds, and the increased output of red cells is a compensating reaction.

Hypochromic anemia can be induced in experimental animals by feeding them a milk diet. This anemia is only partially relieved by giving iron, but is relieved by adding a small amount of cobalt to the diet. Cobalt has been recommended for treating certain types of anemia in humans, but the claims have been received with reserve by most clinicians.

The role of cobalt in the synthesis of vitamin B_{12} and its incorporation into the vitamin molecule is beyond the scope of this paper.

Fluorine

Fluorine has been recognized as a constituent of the skeletal system since 1803. General interest was stirred in the early 1930's when it was found that fluorine in drinking water caused mottled tooth enamel. Several years later, it was learned that small amounts of this element in drinking water lowered the incidence of dental caries. Since much of the information on the relationship between dental caries and fluorine is common knowledge, the subject will not be discussed here.

Recently fluoride has been used in the treatment of osteoporosis and other metabolic bone diseases.[8, 9]

Manganese

Manganese is required for the activation of several enzymes. It serves as a metal cofactor *(in vitro)* for the synthesis of long-chain fatty acids and cholesterol in liver slices. Manganese deficiency has been produced experimentally in a number of species and manganese is related to the naturally occurring diseases of poultry known as "perosis" and "nutritional chondrogystrophy." That manganese is essential for man has never been proven but is suspected.

Manganese is poorly absorbed from the intestinal tract. High dietary calcium and phosphorus decrease absorption. There is evidence that it is transported in plasma in combination with a β-globulin. The amount in blood is only 1.5-3.0 μgms per 100 ml. It is about equally distributed between plasma and cells. Retinal tissue is relatively rich in manganese.

When mice and rats are raised on a manganese deficient diet, there is decreased growth, bone changes (decreased length, breaking strength and density), testicular atrophy and abnormalities of reproduction in the female. Liver arginase and bone phosphatase activities are reduced. When manganese is omitted from the maternal diet of guinea pigs, litter size is reduced, a large number of the young are born dead or prematurely, and the living young show ataxia and abnormal head movements. Manganese deficient pigs show similar changes, together with skeletal or muscular weakness, increased back fat thickness and almost complete absence of milk production. Deficient cows are slow to produce oestrus, slower to conceive and tend to produce calves with weak legs.

Workers exposed to dust from manganese ores may absorb enough of the metal to develop symptoms of toxicity. Eventually, the syndrome is like a progressive hepatolenticular degeneration and in some respects resembles Parkinson's disease.

Molybdenum

Two enzymes containing molybdenum have been found: xanthine oxidase and liver aldehyde oxidase.

Rats develop xanthine oxidase deficiency on low molybdenum diets. Aside from this, no disease has been produced in animals or humans on molybdenum free or low diets. The relationship between molybdenum and copper was mentioned earlier in this paper.

When fed in excess, molybdenum is quite toxic to ruminants. Excess molybdenum induces copper deficiency. The toxic effects of excess molybdenum can be avoided, or treated by feeding additional copper, sulfate or proteins high in sulfur-containing amino acids.

Other Trace Elements

Selenium is an essential trace element for rats and pigs. It prevents liver necrosis.

In ruminants selenium is incorporated by bacteria in the rumen into cystine and methionine selenium analogs. These selenanologs are absorbed by the animal and deposited. Even in nonruminants, much of the ingested selenium is incorporated in the tissues as seleno-amino acids.

The toxic effects of selenium are well known in livestock. The conditions are known as "alkali disease" and "blind staggers" in the Great Plains states of this country.

Other trace elements that may prove of interest as our knowledge increases are nickel, aluminum, arsenic, barium and strontium.

Iron and iodine act in the animal as trace elements. Since much is known of their metabolic role, they will not be outlined here.

Summary

Only in a symposium of great length could all the known facts about the trace elements in nutrition and metabolism be given. In this paper most attention has been given to copper, zinc, cobalt, manganese and molybdenum. Iron and iodine were not discussed because they are so commonly in the minds of clinicians.

The normal sources of the trace elements in man are food and water. The amount of any element in food, both vegetable and animal, is related to the amount of the element in the soil, water and atmosphere. Even microorganisms play a role—as in the formation of vitamin B_{12} in ruminants.

As yet we cannot compile a table listing the requirements of the trace elements for man or any other organism. Man can utilize all the trace minerals in the inorganic form, except cobalt. There is no evidence that our usual mixed diets are inadequate in any element. Neither is there any indication that man often encounters any deleterious excess of any element.

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KMS MEMBERSHIP DIRECTORY

The 1968 Membership Directory of the Kansas Medical Society will be published July 15, and one copy provided each member of the Society, free of charge. Additional copies will be available and may be obtained by writing the Kansas Medical Society, 315 West 4th Street, Topeka, Kansas 66603. The cost per copy has not yet been established.

Law—Medicine Comment

Anatomical Gifts

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WILLIAM F. HARVEY, J.D., LL.M.*, *Topeka*

ORGAN TRANSPLANTATION, extending medical frontiers to previously unexplored areas, continues in the international limelight with increasing application of techniques involving transfers of the kidney, liver, lung, and heart. On the other hand, older transplantation procedures for other tissues—blood transfusion, skin grafting, corneal grafting, bone grafting, or blood vessel grafts—are already important parts of our armamentarium and no longer evoke similar popular concern.

Current developments are also accompanied by areas of legal uncertainty, since legislation or precedents in case law may be absent, or may relate to the ethos and expertise of former years. These problem areas involve predominately the consent of the donor of the organ or of those legally able to speak for him, although problems relating to the recipient of the graft (informed consent), and to the transplanters ("reasonable" professional care and potential liability), must be recognized.

Transplants from living donors necessitate voluntary and knowing consent, increasingly required by the courts, and difficult to obtain in times of great emotional stress. Special problems arise if the donor is a minor (or otherwise incompetent), or if the donor is unconscious. In Massachusetts, the psychological benefit to the healthy twin has been used to establish consent in declaratory judgment actions, thereby enabling transfer of a kidney to the other twin. For the unconscious patient prior to the moment of death, however, the difficulties appear insurmountable, because the doctrine of implied consent to emergency treatment is inapplicable, and because other therapeutic benefit to the donor does not exist.

The entire theoretical question concerning a living donor's legal ability to consent to a non-therapeutic operation upon himself for the therapeutic benefit of another individual has not yet been completely solved. Analogies have been drawn to the law involving maiming, a crime, where consent would be irrelevant. Maiming, a statutory crime in Kansas, can be committed by an act of culpable negligence which results in "great bodily harm" under "circumstances which would constitute murder or manslaughter if death had ensued."[1] This statute is theoretically applicable to transplants from living donors. From a practical point of view, however, the valid and ascertainable consent of an adult donor should be sufficient for the removal of an organ not immediately essential to his own survival, provided that established professional standards and judgment are utilized.

Transplants in the "gray" zone, from hopelessly unconscious donors involve the determination of the moment of death, a topic discussed in a previous issue.[2] In this area, concepts of cerebral death are assuming increasing significance, since the successful transplantation of organs is facilitated by their early removal from the donor. Modern developments are illustrated by a report from Belgium,[3] concerning the definition of death in potential organ donors. Nine patients with severe head injuries, whose hearts had not stopped, were used as donors for kidney transplants, on the basis of the following five criteria of death: (1) complete bilateral mydriasis; (2) complete absence of reflexes, both natural and in response to pain; (3) complete absence of spontaneous respiration; (4) falling blood pressure, necessitating increasing amounts of vasopressive drugs; and (5) a flat EEG.

Pronouncement of cerebral death under controlled circumstances appears at present permissible in other

Legal problems involving anatomical gifts are largely concerned with consent of the donor or of those legally able to speak for him. These problems are presented as (1) transplants from living donors, (2) transplants from hopelessly unconscious donors, and (3) transplants from cadavers. The recent Kansas enactment, providing for the post-mortem gift of all or part of a body, is reproduced and discussed.

* From the Washburn University School of Law, Topeka, Kansas. Reprint requests to 104 Medical Arts Building-East, Topeka (Dr. Halley).

European countries, and has also been reported in the United States, although a definite legal basis has not yet been established.

Transplants of organs from cadavers constitute the largest reservoir of such material pending the development of artificial appliances. Problems again center around proper authorization or consent, which ideally should be obtained in the ante-mortem period, so that expeditious removal after the donor's death may be accomplished. The legal effect of any ante-mortem disposition of his body by the donor is open, however, to question in jurisdictions without specific legislation, and consent to autopsy alone does not authorize removal of organs. Therefore the physician must generally obtain specific consent of those entitled to possession of the body in order to insulate himself from possible liability. Legislation authorizing testamentary disposition of bodies or parts of bodies, and enabling the surviving spouse or other parties to donate organs in the absence of contrary directions, has thus been enacted in a number of jurisdictions, and a uniform law is presently in the process of drafting, for presentation to state legislatures. One form of this kind of law, discussed below, has been enacted by the Kansas Legislature.

Kansas Legislation

The "Uniform Anatomical Gift Act," authorizing anatomical gifts of all or parts of the body after death was passed by the Kansas Legislature, signed by the Governor, and will become effective at publication in July 1968. This law, which is reproduced below, is commented upon as follows:

Section 2 lists the persons who may execute an anatomical gift (of all or a part of the body) as an individual who is competent to execute a will, and specified relatives or other parties. The relatives or other parties may make the gift, unless there is knowledge of contrary directions by the decedent, either after death or immediately before death during a terminal illness.

Section 3 states that physicians, hospitals, other specified institutions, tissue banks, or specific individuals may receive the gifts, for purposes of research, education, advancement of medical science, therapy, or transplantation, as stated.

Section 4 states that the manner of making the gift may be by will, or by document other than a will, including a properly executed card carried on the donor's person. If the gift is made by a party other than the decedent, the document requires only the signature, but no witnesses. It should be noted that all methods of executing the gift involve written documents, whereas *Section 6* provides that revocation may be made orally, as well as by several other methods including the carrying of a card of revocation, physical acts of revocation of and to the undelivered document, or by revocation or amendment of a will. These areas might be troublesome, because the exact status of the gift, in terms of possible revocation, may be difficult to determine in the immediate post-mortem period.

Section 7 enables the donee to accept or reject the gift, and provides that he may remove parts immediately after death without undue mutilation. However, the time of death must be determined by a physician who is not a member of the transplantation team. (This of course reflects general concern about possible over-enthusiasm in transplantation procedures.) Persons acting in good faith, in accord with the terms of the act, and without actual notice of revocation of the gift, are exempted from civil liability.

In this regard, possible conflicts with Section 18 of the *Kansas Bill of Rights* should be noted, since it is there provided that all persons, for injuries suffered in person, reputation, or property, shall have remedy by due course of law. Reconciliation with Section 18 is apparently found, however, in recognizing that the Anatomical Gift Act does not protect from civil liability if the person acting under it actually knows that the gift is revoked. It would seem that the constitutional right, under this statute, is lost only by valid consent, and failure to communicate revocation. If this is correct, then the possible conflict with Section 18 of the *Kansas Bill of Rights* should not arise.

Section 7(c) makes the provisions of the act subject to the laws of the state in respect to autopsies. It should be here noted that G.S. 19-1025, entitled, "Autopsies Upon Written Authority; Exception," providing for an autopsy upon a deceased person by a physician or surgeon when so authorized in writing, was repealed on January 11, 1965, as shown in K.S.A. 19-1025 (1964), as amended.

General Comment: Immediate removal of organs, on the basis of the donor's consent alone, may not be advisable, because revocation, as well as execution of of the gift, may occur by methods not immediately ascertainable. This problem may be resolved, however, by obtaining permission from the appropriate relative or other parties, in circumstances where prompt removal of organs after death is mandatory, even though prior consent by the decedent has apparently been granted. If this course is followed, then *Section 2(6)* must again be observed. In it is found this sentence: "but if the donee or his agent knows that there is controversy among the classes of relatives named with respect to making the gift, it shall not be accepted." This appears to be a statutory

command to a donee to refuse to accept a gift, when such controversy is present. If this situation occurs, reliance must be placed solely on the permission given by the decedent, rather than on that given by the relatives or other designated parties.

Finally, it should be emphasized that the entire "Anatomical Gift Act" is one of post-mortem gifts, and that the determination of the moment of death is therefore crucial.

Senate Bill No. 532 (The Uniform Anatomical Gift Act)

SENATE BILL No. 532

AN ACT concerning the uniform anatomical gift act; authorizing the gift of all or part of a donor's body after death for specified purposes; prescribing a procedure therefor; and providing for the revocation thereof.

Be it enacted by the Legislature of the State of Kansas:

Section 1. *Definitions. (a)* "Person" means individual, corporation, government or governmental subdivision or agency, business trust, estate, trust, partnership or association, or any other legal entity.

(b) "Body or part of body" includes organs, tissues, bones, blood and other body fluids in the body of the donor, and "part" includes "parts."

(c) "Licensed hospital" includes any hospital licensed or approved by appropriate authorities under the laws of any state, and it also includes any hospital operated by the United States government although not required to be licensed under state laws.

(d) "Licensed physician or surgeon" means a physician or surgeon licensed to practice under the laws of any state. "Licensed technician" means a medical assistant licensed as such under the laws of any state.

(e) "Licensed bank or storage facility" means a facility licensed or approved by appropriate authorities under the laws of any state.

(f) "State" means any state, territory or possession of the United States, the District of Columbia or the Commonwealth of Puerto Rico.

Sec. 2. *Persons who may execute an anatomical gift. (a)* Any individual who is competent to execute a will may give all or any part of his body for any one or more of the purposes specified in this act, the gift to take effect after death.

(b) Unless he has knowledge that contrary directions have been given by the decedent, the following persons, in the order of priority stated, may give all or any part of a decedent's body for any one or more of the purposes specified in this act:

(1) The spouse if one survives. If not,

(2) an adult child,

(3) either parent,

(4) an adult brother or sister,

(5) the guardian of the person of the decedent at the time of his death,

(6) any other person or agency authorized or under obligation to dispose of the body.

If there is no surviving spouse and an adult child is not immediately available at the time of death, the gift may be made by either parent; if a parent is not immediately available, it may be made by any adult brother or sister; but if the donee or his agent knows that there is controversy among the classes of relatives named with respect to making the gift, it shall not be accepted. The persons authorized by this subsection to make the gift may execute the document of gift either after death or immediately before death during a terminal illness. The decedent may be a minor or a stillborn infant.

Sec. 3. *Persons who may become donees, and purposes for which anatomical gifts may be made.* The following persons are eligible to receive gifts of human bodies or parts thereof for the purposes stated: *(a)* Any licensed hospital, surgeon or physician, for medical education, research, advancement of medical science, therapy or transplantation to individuals;

(b) any medical school, college or university engaged in medical education or research for education, research or medical science purposes;

(c) any person operating a licensed bank or storage facility for blood, arteries, eyes, or other human parts, for use in medical education, research, therapy or transplantation to individuals;

(d) any specified donee, for therapy or transplantation needed by him.

Sec. 4. *Manner of executing anatomical gifts. (a)* A gift of all or part of the body for purposes of this act may be made by will, in which case the gift becomes effective immediately upon death of the testator without waiting for probate. If the will is not probated, or if it is declared invalid for testamentary purposes, the gift, to the extent that it has been acted upon in good faith, is nevertheless valid and effective.

(b) A gift of all or part of the body for purposes of this act may also be made by document other than a will. The document must be signed by the donor, in the presence of two (2) witnesses who shall in turn sign the document in his presence. If the donor cannot sign in person, the document may be signed for him at his direction and in his presence, and in the presence of two (2) witnesses who shall in turn sign the document in his presence. Delivery of the document of gift during the donor's lifetime is not necessary to make the gift valid. The document may consist of a properly executed card carried on the donor's person or in his immediate effects. The gift

becomes effective immediately upon the death of the donor.

(c) The gift may be made either to a named donee or without the naming of a donee. If the latter, the gift may be accepted by and utilized under the direction of the donor's attending physician at or following death. If the gift is made to a named donee who is not reasonably available at the time and place of death, and if the gift is evidenced by a properly executed card or other writing carried on the donor's person or in his immediate effects, the donor's attending physician at or following death may, in reliance upon the card or writing, accept and utilize the gift in his discretion as the agent of the donee. The agent possesses and may exercise all of the rights and is entitled to all of the immunities of the donee under this act.

(d) The donor may designate in his will or other document of gift the surgeon, physician, or technician to carry out the appropriate procedures. In the absence of a designation, the donee or other person authorized to accept the gift may employ or authorize any licensed surgeon, physician, or technician for the purpose.

(e) If the gift is made by a person designated in section 2 *(b)* of this act, it shall be executed by a document signed by the person authorized by that section and witnesses are not required.

Sec. 5. *Delivery to donee.* If the gift is made to a named donee, the will or other document, or an attested true copy thereof, may be delivered to him to expedite the appropriate procedures immediately after death, but such delivery is not necessary to validity of the gift. Upon request of any interested party on or after the donor's death, the person in possession must produce, for examination the will or other document of gift.

Sec. 6. *Revocation of the gift. (a)* If the document of gift has been delivered to a named donee, it may be revoked either (1) by the execution and delivery to the donee or his agent of a revocation in writing signed by the donor, or

(2) by an oral statement of revocation witnessed by two persons, addressed and communicated to the donee or his agent, or

(3) by a statement during a terminal illness addressed to the attending physician, and communicated to the donee, or his agent, or

(4) by a card or writing, signed by the donee, and carried on his person or in his immediate effects, revoking the gift.

(b) If the written document of gift has not been delivered the donee, the gift may be revoked by destruction, cancellation or mutilation of the document.

(c) If the gift is made by a will, it may be revoked in the manner provided for revocation or amendment of wills.

Sec. 7. *Effect of gift on rights of donee. (a)* The donee may accept or reject the gift. If the donee accepts, and if the gift is of the entire body, the donee or his agent may, if he deems it desirable, authorize embalming and funeral services. The donee or his agent may, immediately after death of the donor and prior to embalming, cause any part included in the gift to be removed from the body, without undue mutilation. The time of death shall be determined by the physician in attendance upon the donor's terminal illness or certifying his death, and he shall not be a member of the team of surgeons which transplants the part to another individual.

(b) The donee, agent of a donee, or other person authorized to accept and utilize the gift who acts in good faith, in reliance upon, and in accord with the terms of a gift under this act, or any similar act, or upon a document carried by the donor as herein provided, and who is without actual notice of revocation of the gift, shall not be held liable for damages in any civil suit brought against him for his act.

(c) The provisions of this act are subject to the laws of this state prescribing powers and duties with respect to autopsies.

Sec. 8. *Short title.* This act may be cited as the uniform anatomical gift act.

Sec. 9. *Effective date.* This act shall take effect and be in force from and after its publication in the statute book.

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CORRECTION

An error appears in Resolution No. 20 as printed in the June JOURNAL. In the first resolving section, the word "responsibility" should be "leadership." Therefore, this portion of the resolution should read:

"The Kansas Medical Society urges its members to become informed and assume leadership in Comprehensive Health Planning at all levels in Kansas. . . ."



Student
THESIS

The Office Management of the Infertile Couple

DAN CALIENDO, M.D., ***Independence, Missouri***

THERE ARE AN ESTIMATED FIVE MILLION COUPLES in the U. S. today who are infertile, i.e., about 10 per cent of all married people. The cause is seldom singular and the patient frequently presents a difficult diagnostic and therapeutic problem for the physician who lacks special training in this area.

One should have a coordinated and logical approach to the management of the infertile couple. Hopefully this article will provide a comprehensive and concise reference to which the physician can refer. The approach will be practical for the office or small clinic and gives due regard to the financial aspect for the patient.

The most efficient way to manage the diagnosis of infertility is to rule out any abnormalities or pathology involving the normal physiology of reproduction; that is, male fertility, cervical and uterine factors, tubal or ovarian abnormalities, endocrinopathies, and immunological interference.

The Diagnostic Workup

The patient's first visit is the best time to outline your diagnostic plan and assure yourself that the couple is sincere and willing to complete a workup. It should be made clear that the studies will take five to eight months to complete and may cost anywhere from $50 to $300—depending on your findings.

The first step is to obtain a complete medical history with emphasis on any past infections, operations, significant family history (this may be your only clue to any congenital or familial problems), libido, coital technique, menstrual history, and leukorrhea. This, coupled with a thorough physical examination, will do much towards evaluating the possibilities of endometriosis or abnormalities of the adrenals, thyroid, pituitary, or genital anatomy. A pap smear with maturation index should be done prior to the pelvic examination.

A CBC, PBI, and UA are usually done on the first visit, as well as 24-hour urinary 17-ketosteroids if indicated by the clinical picture. The patient should be instructed on how to chart basal body temperature (BBT) which is to be taken every morning before arising, conversing or any activity. Any significant variation in time taken, health, fatigue, alcoholic intake, etc. should be noted. An appointment is made for her next visit to coincide with the estimated time of ovulation and to have had intercourse with her husband three to four hours prior to the visit. Another appointment is made at this time for her husband with the instructions to practice sexual abstinence for a time prior to the visit which coincides with the average frequency of coitus for this couple.

The Cervical Factor: This visit provides an opportunity to review her BBT chart, examine the cervical mucus, and evaluate the post-coital test (Huhner Test). Estrogen depresses body temperature whereas progesterone will elevate the temperature. Thus much can be learned from this simple and inexpensive test regarding ovulation, corpus luteum function, and nidation of the ovum. Examination of the cervical

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* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Caliendo recently completed his internship at McKennan Hospital, Sioux Falls, South Dakota.

mucus is a simple and quick procedure. Post-menstrually the cervical os is small and contains a plug of thick, turbid, and tenacious mucus. With approaching ovulation and increasing estrogen (about the seventh day) the os gradually opens and the mucus becomes clear, profuse, and demonstrates an increased ability to be drawn out into a strand without breaking (Spinnbarkeit). At ovulation the os gapes open and the normal cervix exudes a cascade-like mucous thread which dips into the seminal pool like a "wick" to provide the sperm a means of entering the cervical canal. Normal sperm penetrates clear, clean, watery midcycle mucus readily and rapidly. Increased viscosity and acid mucus immobilize sperm and decrease migration. The mucus is taken from the cervical canal and uterine fundus with a pair of forceps or glass pipet after swabbing the cervical os with dry cotton. The patient should be midcycle and three to four hours post-coital. Place the mucus on a glass slide and examine the specimen for sperm count and motility (there should be 15 to 100 motile sperm per hpf in the cervical canal), fern-type crystallization, spinnbarkeit, etc. The pH of the cervical mucus can be determined by placing a strip of pH paper in the cervical canal. The normal is 6.8 or greater and less than this may decrease fertility.

The Male Factor: Next the husband is seen for a history and physical and a specimen for semen analysis is obtained. The patient is instructed to obtain the ejaculation in a clean glass or plastic receptacle via masturbation or withdrawal during intercourse. Condoms should be avoided because of their spermicidal properties. A specimen obtained at home is satisfactory if the analysis is made within two hours. Scan a drop of semen for the percent of motile sperm and the degree of motility. There should be greater than 50 per cent motility with vigorous activity. The sperm count is made with a hemocytometer following dilution in the white cell pipet with tap water and counting any five of the "rbc squares." This number is then multiplied by one million. Normally there should be more than 35 million/cc. Morphology is almost always normal in the presence of good motility; and a detailed morphologic examination is probably unnecessary.

The Endometrium: During the following month or two the woman should be scheduled for an endometrial biopsy. Most authors recommend the biopsy be done on the twenty-fifth day; but this is not without danger. It is undoubtedly wiser to wait until menses have begun to rule out an early pregnancy. The tissue obtained soon after menses have begun is invariably satisfactory. Many feel this is the best accurate test of ovulation, corpus luteal adequacy, and prognosis; and it gives the physician a "look" at the estrogen-progesterone balance at the site where the egg must develop.

The Tubal Factor: Once male fertility, the presence of ovulation, and absence of pelvic disease have been established it is advisable to confirm tubal patency by means of the Rubin's test (tubal insufflation). It is recommended that this be done unannounced at the time of ovulation or two to four days prior. This may eliminate some tubal spasm secondary to anxiety. This test has been of considerable therapeutic as well as diagnostic value in the experience of some authors.

Psychological Factors: It may be advisable to postpone a superficial psychological evaluation until you have established more rapport with the patient. At this time you can discuss any elements of anxiety, stress, marital discord, previous obstetrical experiences, sexual adjustment, understanding of basic sex physiology, and real attitudes towards her spouse, family, pregnancy, etc. There is a good deal of controversy over just how significant psychological factors are in fertility. These emotional factors can be very complex and will usually necessitate referral to a psychiatrist for definitive treatment. However, the general practitioner should be watchful for some common and simple patterns of behavior such as conscious and unconscious avoidance by either or both the husband and wife. Several authorities feel there is a definite relationship between stress and disturbed endocrine function as illustrated by the high incidence of amenorrhea, menorrhagia, and tubal spasm seen in concentration camps during the war.

Many patients will respond to subtle and minimal psychotherapy in the form of just having someone to talk to. Mild sedation may help if anxiety is responsible for tubal spasm, etc. Intensive psychotherapy should be postponed for at least one year if possible.

Treatment

Perhaps the most difficult aspect of therapy is learning when not to treat the infertile couple. An excellent philosophy is "do no harm." Keep in mind that up to 20 per cent of your patients will become pregnant without any form of therapy.

Treatment may begin with the first visit by directing attention to the patient's general health. Obesity, as well as poor eating habits, should be corrected as soon as possible. Other factors which can affect fertility are the use of tobacco, excessive alcoholic intake, the habitual use of drugs, fatigue, etc.

The Cervical Factor: Treatment of any minor pathology such as vaginitis, cervicitis, endometritis and the like can be begun as early as the second visit. Bacteria and their metabolic products may be sper-

micidal, and the exudate which accompanies inflammatory disease may alter the cervical mucus enough to interfere with fertility. The treatment of choice for an abnormally low cervical mucous pH or an insufficient quantity of mucus is the use of small doses of exogenous estrogen in doses insufficient to inhibit ovulation for three to five months (Premarin 0.625 mg daily on days five through 24 of cycle). An effective medical treatment for endometriosis is the production of a pseudo-pregnancy by using Enovid 10 to 20 mg daily for six to nine months.

The Male Factor: Oligospermia and poor motility are the most common abnormalities found during semen analysis. Consistent oligospermia in the absence of infection, varicocele, or vascular abnormalities has an obscure etiology and the prognosis is generally poor. Hypothyroidism will frequently result in poor sperm counts and these patients as well as a few euthyroid patients will respond to replacement therapy (50 to 100 mcg Cytomel daily as indicated by the clinical response). A trial of Cytomel in the euthyroid patient should not exceed six months. Some cases of oligospermia have shown adrenal hyperplasia and respond to cortisone therapy. A few men may respond to the empirical use of small doses of exogenous testosterone such as Depo-testosterone 200 mg monthly for three or four treatments. Some of the most common causes of oligospermia are overwork, fatigue, and tension. The phenothiazine derivative tranquilizers have been successful in these cases and are worth a trial (Trilafon 2 mg tid). Those few cases of poor motility with normal morphology are probably due to failure of the epididymal and ductal epithelium to provide the necessary nutrients for the spermatozoa during their long journey through the ductal system. This, too, may respond to small doses of exogenous testosterone. Another alternative worth considering is the use of a split ejaculate in those men who show good motility and up to 75 per cent of the sperm in the first portion of the ejaculate. In these patients homologous insemination of the first portion or withdrawal after coital deposition of the first "half" is practiced with encouraging results. Apparently the last portion decreases the potential for fertilization by "contaminating" the first portion. A point to keep in mind is that poor motility with good counts may be secondary to low frequency of ejaculation with a subsequent packing of semen in the ducts. Recent use of clomiphene (MRL-41) and M.A.O. inhibitors for oligospermia have yielded disappointing results.

Azospermia usually leaves the couple with the choices of doing nothing, adoption, or artificial insemination utilizing donor semen. There are no clear-cut legal rulings on the latter; and the physician should refer this situation to someone having more experience in evaluating and preparing the couple and selecting acceptable donors.

Impotence is usually psychological in etiology; but neurogenic and vascular factors should be evaluated. The two choices here are homologous insemination with semen obtained by masturbation or the induction of ejaculation by other means.

Endometrial Factors: Success has been claimed in women who show a biphasic BBT and normal tubal potency by inhibiting ovulation with estrogens. This has been attributed to a "rebound phenomenon"; but this technique has yielded poor results and amounts to the loss of four to six months of potential fertility. The introduction of luteal phase inadequacy as a cause of infertility has aroused recent interest; and success has been experienced in treating this with progestogens such as Enovid during the last half of the cycle. The diagnosis is made from the BBT which shows a gradual rise with ovulation, a luteal phase of less than 10 days, a downward slanting post-ovulatory phase, or two or more drops to the pre-ovulatory level during the luteal phase. A three day or greater delay in endometrial development on biopsy helps confirm the diagnosis.

Low PBI's are common in the teenage group; but only three or four per cent of those older than 20 will exhibit hypothyroidism. PBI's of less than two can be treated with 1.5 to 2.0 grains of thyroid or 0.2 mg synthyroid; whereas 1.0 grain of thyroid is usually sufficient for values between two to four.

Adrenal hyperfunction with a secondary feedback suppression of the anterior pituitary gonadotropins is almost always accompanied by masculinizing clinical features. Elevation of the urinary 17-ketosteroids above 12 mg/24 hours is an indication for adrenal suppression with 5 to 10 mg Prednisone or its equivalent for up to 18 months. If pregnancy occurs, steroids should be continued up to the 28th week of gestation. Hypofunction of adrenals with decreased 17-ketosteroids is rare; but regular ovulation may be attained following use of 50 mg ACTH every third day for a couple of months in these cases.

The patient who becomes anovulatory after having established an ovulatory pattern should be evaluated carefully to rule out a pituitary adenoma with a subsequent decrease in FSH. The physical examination supplemented with visual fields, eyeground examination, and skull films should be sufficient to rule out this disorder.

Recent literature is very enthusiastic about the use of Clomiphene (MRL-41) and human gonadotropins for hypothalamic pituitary failure. The latter drug (Pergonal) obtained from pituitaries at autopsy or menopausal urine is rarely available and prohibitively expensive. Clomiphene is not yet available on the market, but is available in research centers and is

probably the best means of inducing ovulation in these patients.

Tubal Pathology: Tubal inflammation may respond well to antibiotics early in its course; but in the subacute and chronic stages hot douches are the treatment of choice. (Instruct patient to douche continually for 20 to 30 minutes once or twice a day by hanging the douche bag under the faucet and sitting in the tub.) Repeated tubal insufflation with CO_2 may correct phimosis of the fimbria, occlusion or poor peristalsis; but should be discontinued after four months if unsuccessful.

Conclusion

When the diagnostic study is complete a joint session should be held to discuss the findings, alternatives available, and prognosis. If the workup to this point has been inconclusive or points to conditions too complex for office management, the couple should be referred for further diagnostic procedures. Among these are culdoscopy, hysterosalpingogram, immunological and chromosomal studies, and possibly an exploratory laparotomy.

The physician should be as optimistic as possible—yet always honest—when discussing the prognosis with the couple. The over-all conception rate for infertile couples who seek medical aid is in the range of 40 per cent; but the prognosis declines when there is a greater than five year history of infertility. The outcome varies with each case and perhaps the best indication of the prognosis for the individual case is the endometrial biopsy. It has been found that if the endometrium exhibits real hyperplasia or atrophy prior to therapy there is very little chance of this patient having her own baby. Women with an inactive or resting endometrium have up to a 50 per cent chance of delivering a child with proper treatment. A proliferative or secretory endometrium in the second half of the cycle carries a 30 to 40 per cent prognosis. These figures will undoubtedly be altered by the increasing use of Clomiphene.

The physician who takes the time to organize his diagnostic workup and generate the enthusiasm and interest of his patients can evaluate most of the factors underlying infertility (i.e. male, cervical, uterine, tubal, ovarian, and endocrine) without having to resort to referral or specialized diagnostic procedures. At this point he can refer the patient for immunological tests as well as further diagnostic procedures. The results should be rewarding and few couples will require referral and the expensive procedures which seldom reveal factors missed by good office management.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

INSECTICIDES

Are the bugs eating up your garden?

Most insects can be knocked out with sprays, powders and other poisons, but the unwary gardener sometimes can suffer from the effects of bug sprays too.

Some tips on use of insecticides are offered in *Today's Health,* the magazine of the American Medical Association.

- Read the directions on the container carefully and follow them. The manufacturer spells out the proper usage and safety precautions.
- If the directions call for rubber gloves, protective clothing or goggles, leave this alone, unless you are an expert.
- Store the insecticide in its original container, with original label, in a safe, locked compartment, away from children and pets.
- Destroy empty containers immediately.
- Apply downwind, to avoid inhaling sprays and dusts. Stay out of freshly sprayed areas.
- Do not smoke while spraying or dusting. Some of the chemicals are flammable.
- If chemicals are spilled on skin, wash immediately and thoroughly.
- Cover bird baths, dog dishes and fish pools before spraying. Pour left over spray down a drain or into the soil. Don't leave it around in pans or pails.

In case of accident, follow the directions on the container. If in doubt, call your physician.—*AMA Health and Safety Tips*

SAFETY CHECKLIST

Older men and women, like the handicapped, may require some adaptations in the home to avoid accidents and keep safe and well, advises the National Society for Crippled Children and Adults.

A checklist has been designed to alert all members of the family, as well as senior citizens, to the dangers and hazards in and about the normal household. Awareness of these safety factors can help prevent many of the more than 17,000 deaths and many serious falls and other accidents that claim older persons in their homes and apartments each year.

The safety hints cover seven categories: general household, kitchen and laundry, bathroom, basement, yard and outdoors, car and emergency measures. Some 80 items are listed, 34 of which apply particularly to the aging.

Single copies of the checklist are available free from the Natoinal Society for Crippled Children and Adults, 2023 West Ogden, Chicago, Illinois 60612 or from local Easter Seal societies.



CP + T

Newsletter

Hypnotic Drugs

Sleep itself is so poorly understood it is difficult to speculate on the relationship between chemical structure and pharmacologic effect of hypnotics. Adding to the dilemma, patients vary widely in response to hypnotics. Some people feel the need for hypnotic drugs because lying awake for even brief periods is a major discomfort. Other individuals sleep little and yet find no need for hypnotic agents. Some individuals in the latter category fall into the "stimulus-bound" group who do not want their environment clouded by any central nervous system (CNS) depressing agent. These individuals may get a "sedating" effect from amphetamines since they are most at ease in an alerted state. The paradoxical effect of drugs also can be seen in the hyperactive, "amytal-wild" response to barbiturates in patients with chronic brain syndrome. Moreover, a standard barbiturate dose may be therapeutically inadequate for some and over-sedating to others. These examples of variability in response to drugs indicate the need to tailor the drug to the patient and his specific complaints.

Basic to any discussion of hypnotic drugs is a consideration of the causative agents in producing complaints of insomnia. Generally, solutions to the day's problems are being sought during the hours allotted for sleep. Drugs alone cannot alleviate the condition; therefore, distraction from problems in prebedtime activities may be more effective. Late movies on television may be one such distraction, providing the frequency of commercials is not more anxiety-producing than the day's problems. Pain may be a causative factor in producing insomnia. Often non-narcotic analgesics alleviate both complaints. Hypnotics may have the capacity for producing states of delirium in patients with pain but, in practice, this associated effect is unusual. Pain should be treated with analgesics but hypnotics may be required when insomnia is also a problem. It is interesting that pentobarbital alone has been shown to have a slight analgesic effect.

Drug selection depends largely on the condition to be treated. For acute, intermittent insomnia, a rapid hypnotic effect is obtained with the liquid preparations, chloral hydrate and paraldehyde. The offensive smell and taste of these agents limit their use, but these same factors are largely responsible for the low incidence of addiction associated with them. Chloral hydrate in capsular form and barbiturates in tablet form are more acceptable for general use.

In prescribing barbiturates, speed of onset and duration of action have been used to determine drug selection; i.e., drugs with rapid onset and short duration (secobarbital) for patients having difficulty falling asleep, and those with long action and slow onset (phenobarbital) for patients who have difficulty staying asleep. This method of barbiturate classification has been criticized since manipulation of a drug like secobarbital can produce effects ranging from light sedation to deep, prolonged coma. It has also been noted that duration of coma is similar in patients poisoned with long and short-acting barbiturates. It was recently suggested that rapid induction of sleep may best be obtained using "ultra-short-acting" barbiturates. Such agents, like sodium pentothal, have been used primarily as an intravenous anesthetic agent. These agents given orally may have a

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

place in the treatment of patients who require an agent having rapid but brief hynotic effects.

New non-barbiturate hypnotics have been developed in an effort to find a drug which gives rapid onset and short duration of action without the residual sedation and lethargy ("hangover") associated with the barbiturates. These drugs include those with a tertiary carbonyl group: ethchlorvynol (Placidyl), ethinamate (Valmid) and the piperidinedione derivatives, methyprylon (Noludar), and glutethimide (Doriden). These agents are not as potent as barbiturates with respect to CNS depression and may require larger amounts of produce hypnotic effect. Although potency may be less, overdosage from any of these agents may cause coma, respiratory failure, and death. Other than possibly less respiratory depression, the non-barbiturates have few advantages over the barbiturates, and their greatest usefulness may be in treating patients who cannot tolerate barbiturates or respond poorly to them. Antihistaminic agents, such as diphenhydramine (Benadryl) and promethazine (Phenergan), have sedative properties as side effects but these effects have not been utilized clinically because degree of sedation is variable. One drug of this group, doxylamine (Decaprin), appears to have a more consistent hypnotic effect and, in doses of 25 to 50 mg, it is similar to short-acting barbiturates. Although studies have been limited, no known tolerance or physical dependence has been observed for this drug.

There is a tendency to use antianxiety agents, such as meprobamate (Miltown) and chlordiazepoxide (Librium), as sedatives. These agents are weak sedatives and have no advantage over barbiturates since they also are subject to drug abuse and may cause "hangover," tolerance, physical dependence, and skin rash.

The antipsychotic compounds, phenothiazines and reserpine, have marked sedative properties; but side reactions, such as hypotension, limit their use as hypnotics. Opiates also have no place in the treatment of insomnia.

This discussion has been concerned with the treatment of intermittent insomnia. Chronic therapy for this condition is more complex. Although the daily barbiturate doses of 0.1-0.2 gm of secobarbital may have no serious side effects, 0.6 gm given daily is associated with tolerance to the drug, physical dependence, and withdrawal syndrome when the drug is abruptly stopped. Hypnotics should be used only when a real need exists and at the lowest effective dose.

The potential hazard of suicide exists when hypnotics are prescribed. It has been suggested that prescriptions should be marked "no refill" and only sublethal quantities should be given. For barbiturates and the antianxiety agents, this quantity is a 7-10 day supply or 7-10 times the therapeutic dose.

GALLEY PROOF CORRECTIONS

There is sometimes a misunderstanding about changes in an article on the galley proofs and the reluctance of the JOURNAL to make extensive alterations. The reason for this is quite simple and easily understood when one knows all the facts. The article has already been set in type. To make extensive changes requires that the typesetting be done over, at an additional cost which may even exceed the original, because it is slower work to fit pieces together than to set an entire article in type. It is also obvious, when one stops to think about it, that an alteration in the first few lines of a paragraph will probably make it necessary to reset the entire paragraph. This, of course, increases greatly the cost of printing and should be avoided as much as possible. The galley proof is for correction of *errors,* and a rewriting of the article should be done on the original copy before it is submitted for publication.

Cancer Page

Patient History

The patient was a 63-year-old white female. She had a small "blemish," just above the right lateral malleolus, fulgurated five years ago. A small black lump recurred at this site one year later and was excised, but no pathological examination was performed. Two years ago she presented with multiple nodules in the groin, and an obvious large recurrent malignant melanoma on the right leg. Wide radical excision and groin dissection were performed. The groin dissection was carried retroperitoneally, and positive nodes encountered in periaortic area. The patient experienced a gradual downhill course and died of disseminated malignant melanoma.

Comment

Pathological examination must be performed on all excised tissue. No lesion can be safely fulgurated unless it is positively identified.

—Prepared by the *Committee for Control of Cancer*

The President's Message



Doctors' house calls are a currently popular theme for magazine cartoons. Comedians in night clubs and on television delight in ridiculing this aspect of the patient-physician relationship.

I have discussed this trend with many of my colleagues who serve as do I seeing many, many patients daily in the home, in the hospital, and in my office. Those of us in general practice and in the broader specialties are so swamped by heavy patient loads that our time is over-budgeted toward direct patient care. We have scant time to analytically answer the many pointed barbs in the news media which seem to hit us as on the run we go from house call to hospital and to our office, always an hour behind schedule.

I have always made house calls including night calls. Invariably my patients have been grateful for my visit and I have been welcomed not only as a physician but as a guest of the home. My house calls have given me an insight into my patient's situation in life, his joys, his stresses, his prejudices and his hobbies.

I make fewer house calls than I did years ago.

Why?

True, I can better diagnose and treat a patient's illness if he is safely able to come to my office or to the hospital emergency room where I have laboratory and x-ray services at my disposal.

Equally true, I find it increasingly difficult to make unscheduled non-emergency calls.

For many reasons the average American seeks health care more frequently now than he did twenty years ago. We are now a health conscious people. We physicians do offer more precise diagnostic procedures and administer more definitive treatment than we did even a few years ago. This success has breeded an increased patient volume. Our hospital patient loads have become ponderous. Our office practices are conducted on an appointment schedule with solid booking weeks ahead and the ominous term "closed practice" is more evident.

When I make a daytime house call I leave a reception room full of patients who have waited several weeks for their appointments and have often traveled fifty miles.

In the early morning and at night when I am called from my hospital rounds, I may leave a patient with a coronary occlusion or a bleeding ulcer in the care of our nurses, since our hospital like the great majority of hospitals in Kansas has no house staff.

When I reach home at night, my wife can attest to my fatigue.

What is the answer? The answer applies not only to house calls—it applies to our patient-physician relationship in general.

We "people doctors" who daily see many patients looking at us across our desks and up at us from their beds are in terribly short supply.

The old statistics reflecting a numerically ideal patient-physician ratio are as out of date as high button shoes.

We talk about increasing the enrollment of medical schools. Fine, but look at the fine print and see how many young graduates enter family practice or one of the broader specialties. Try to find a young man as an associate in general practice, internal medicine, or pediatrics.

Do comedians' jokes and "hate-doctor" books and articles encourage qualified young men to enter medical school and then to enter general practice or a broad specialty?

Do excessively liberal research grants encourage medical graduates to stay in the seclusion of institutions?

Have medical school teachers by evolution become sub-specialists who can scarcely keep up to date with the cascading mass of scientific data in their chosen field and "publish or perish" and yet remember to mention to the medical students that there is a need for physicians on Main Street?

Do governmental programs with third party intrusion into the traditional patient-physician relationship discourage the aspiring family physician?

Group practice? Does a "group" make house calls? Does a "group" develop a close, friendly, and sympathetic understanding of the patient and his situation on an unchanging year after year basis?

The availability of house-call-making doctors is but a reflection of the over-all shortage of practicing physicians.

I don't know all of the answers. I only know there aren't enough of us serving on the front line of medical care.

J. E. Morgan

President



Editorial COMMENT

Hospital Utilization

The Kansas Hospital Association recently completed a statistical analysis of Kansas hospital discharges and length of stay, comparing 1967 with similar surveys conducted in 1965 and 1963. The following observations from the data received are presented without attempts at analysis or interpretation. Comments upon the meaning of these figures, suitable for publication in the JOURNAL, are solicited.

More Kansans obtained hospitalization outside this state and fewer non-Kansans were hospitalized here in each successive survey year. The state population figure rose each year.

	1963	*1965*	*1967*
Population of Kansas (less military & institutionalized)	2,118,386	2,143,727	2,180,750
Kansans seeking care out-of-state	192,878	210,901	211,062
Out-of-state residents seeking care in Kansas	108,032	105,681	104,321

Discharges in the fields of medicine and surgery increased in each survey year as did the total patient days stay. Decreases in obstetrics and pediatrics were sufficient to reduce the total of patients discharged in 1967 under the figure for either 1965 or 1963. However, total patient days increased.

	1963	*1965*	*1967*
Discharges	382,136	388,209	377,075
Patient days	2,822,544	3,156,837	3,405,070

The Hospital Association survey views the above in another way by showing the numbers as they relate per 1,000 population. In 1967 there was the equivalent of 1.6 days of hospital care given each Kansas resident.

	1963	*1965*	*1967*
Discharges per 1,000 population			
Medicine, Surgery	124.1	132.5	131.4
Obstetrics	24.4	21.1	17.9
Pediatrics	17.5	17.8	14.7
Other	22.0	19.1	17.46
Total	188.0	190.5	181.46
Patient days per 1,000 population			
Medicine, Surgery	1,054.9	1,117.5	1,242.0
Obstetrics	103.5	92.0	75.8
Pediatrics	73.8	78.1	66.4
Other	155.9	261.1	257.6
Total	1,388.1	1,548.7	1,641.8

The average length of stay increased as evidenced by the reduction in discharges and the rise in patient days. The remarkable finding is that the average length of stay was rather constant for all services except medicine and surgery. In those two areas of service the length of stay increased by 12 per cent between 1965 and 1967. In 1967 medical and surgical patients under age 65 stayed 7.26 days while those over 65 stayed 14.36 days.

Accreditation of Hospitals

The Joint Commission on Accreditation of Hospitals recently published the results of 1967 accreditation surveys. As of the close of 1967, 4,856 hospitals and 1,512 extended care facilities had been accredited.

During 1967 the commission surveyed 2,090 hospitals, gave full accreditation to 74 per cent; provisional accreditation to 20 per cent; and rejected the applications of 116 hospitals, or 6 per cent of the total surveyed.

Medicare—Medicaid

TITLE XIX IN KANSAS

After one year, it is well to review the experiences of physicians of Kansas in their participation with Title XIX.

Through the consistent and constructive efforts of the seven-man Advisory Committee, with the aid of the Committee on Aging and other committees of the Kansas Medical Society, the first portion of the *Guidelines for Physicians* has been developed. These Guidelines were presented to and adopted by the House of Delegates of the Kansas Medical Society on May 1, 1968. They were then approved by the State Board of Social Welfare without addition or correction on May 23, 1968. The Guidelines will be distributed to each of you as soon as they are printed.

Additional guidelines embracing other phases of the practice of medicine will be developed during the coming year.

It is requested that you read the Guidelines carefully for they express in a general way what we mean in Kansas when we say, "usual, reasonable and customary."

The members of the Seven-Man Committee are, James A. McClure, Topeka, Chairman; Thomas P. Butcher, Emporia; Phillip A. Godwin, Lawrence; Simon E. Hershorn, Wichita; Herman H. Jones, Kansas City; John W. Travis, Topeka; and G. Rex Stone, Manhattan. D. V. Preheim of Newton was the chairman of the Committee on Aging. The Seven-Man Committee operates under the aegis of the Commission for Sociology and Economics, Kenneth L. Graham, Leavenworth, Chairman. It was a tribute to Kansas medicine when representatives of Health, Education and Welfare for this region requested copies of these Guidelines to pass on to some of our neighboring states.

The Committee on Conservation of Eyesight has been most active in developing the new program for the purposes of examination of the eyes and the prescribing of eyeglasses. When all of the details have been worked out, the program will become a part of the Guidelines. James E. Hill of Arkansas City was the chairman of this committee.

Francis T. Collins of Topeka, as chairman of the state-wide Committee on Utilization has spent much time and effort to develop guidelines for local utilization review committees. This is a most important function, involving all physicians, all hospitals, all extended care facilities and many of our patients, not only under Title XVIII (Medicare) and XIX, but to a degree under other prevailing programs.

The transition to Title XIX with Blue Shield as fiscal intermediary in Kansas has been relatively smooth. The physicians of Kansas have been most cooperative. Even in delays in payment for services, most of the doctors have been quite tolerant. Most of the roadblocks to smooth operation—many of which were without the field of operation of Blue Shield—have been removed. New claim forms, which are designed to simplify the paper work in doctors' offices are in the process of development.

The Department of Welfare and the Board of Social Welfare have been most interested and cooperative in the development of the Title XIX program. In approving the Guidelines, they evidenced much trust in the integrity, judgment and foresight of the Seven-Man Committee.

In the first eight months of operation, providers of medical service in Kansas have been paid almost $3,000,000. Analysis of the pay-out sheets for physicians' services for this period reveals that charges made by most doctors have been moderate. Payment for office visits is about 20 per cent of the total. The record reflects the general attitude that Kansas doctors are taking seriously the concept of "usual, reasonable and customary" fees.

One area that is still troublesome is the area where one patient with one major diagnosis is seen by more than one physician. The Guidelines spell out quite clearly Welfare's liability for payment under these circumstances. In fairness to yourself and your fellow practitioners please follow the Guidelines specifically.

LUCIEN R. PYLE, M.D.
Medical Coordinator to Social Welfare



Personalities—IN KANSAS MEDICINE

In June, **James Kelley** and family moved from Marysville to Los Angeles, where Dr. Kelley will continue his training in internal medicine at the University of Southern California Medical Center. Dr. Kelley has two years of credit toward certification and will be certified by the Society of Internal Medicine after completing his year's training in California.

Robert E. Bolinger, professor of medicine and gerontology, and **Donald L. Rose,** professor and chairman of the physical medicine department, were among the employees of the University of Kansas Medical Center who received service recognition pins at the seventh annual employees recognition ceremonies held in May. Both have completed 20 years of service.

Paul B. Burger, Shawnee Mission, was presented the ninth annual Kansas Monk award as the outstanding alumnus of St. Benedict's College, Atchison. The award was made at St. Benedict's national alumni convention held at the college in May.

Governor Robert Docking recently announced the appointment of **R. Rex Lee,** Wichita, to the Kansas State Board of Health.

Pins signifying membership in the Gold Medal Club were awarded **Laurence S. Nelson,** Salina, and **Parke H. Woodard,** Prairie Village, in June. The club is an organization composed of persons whose classes were graduated from the University of Kansas at least 50 years ago.

The Crawford County Medical Society honored **C. Herbert Smith** for 52 years as a practicing physician in Pittsburg. The recognition, in the form of a plaque, was presented to Dr. Smith by **C. H. Benage** at a dinner given by the medical society in June.

Alexander C. Mitchell, Lawrence, was elected chairman of the board of the Kaw Valley Heart Association in May. Other officers elected include **David G. Laury,** Ottawa, vice president, and **Kenneth A. Powell,** Leawood, and **R. R. Snook,** McLouth, who serve as members of the board of directors.

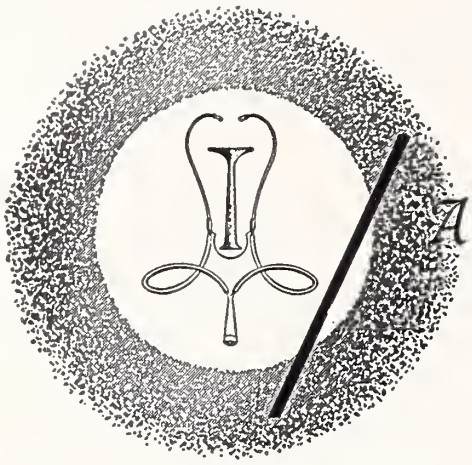
Theodore E. Young, Topeka, and **Joseph G. Lockhart,** Wichita, have been selected by the American Academy of Pediatrics to serve as Head Start consultants.

Two Newton physicians were recently notified that they had completed requirements for admission to professional boards. **Milton A. Classen** has been admitted to the American Board of Orthopedic Surgery, and **Ivan H. Carper** is now a Diplomate of the American Board of Surgery.

Frank A. Trump, Ottawa, recently received a special award from the Kansas Tuberculosis and Health Association in honor of his years of service as association president from 1945 to 1951. Dr. Trump has served since 1920 as a member of the association's board of directors and since 1931 as a member of its executive committee.

Lloyd W. Reynolds, Hays, **John C. Mitchell** and **D. A. Jackson,** both of Salina, participated in a workshop sponsored by the Kansas Association of Medical Record Librarians held in Salina in June.

A cancer conference for nurses, sponsored by the Kansas Division of the American Cancer Society, was held at Bethel College in Newton in May. **Lee S. Fent,** Newton, education chairman of the Kansas division and member of the ACS national board, spoke on "Cancer: What Is It?" **Eugene C. Hwa, Herbert Fransen,** and **Francis A. Allen,** all of Newton, led a discussion session.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

AUGUST

Aug. 15-16 — Midwest interprofessional seminar, *Diseases Common to Animals and Man,* Mayo Memorial Auditorium, Minneapolis. Write: Dr. S. L. Diesch, Dept. of Veterinary Medicine, Univ. of Minnesota, St. Paul 55101.

Aug. 15-17 — *Big Sky Medical Pow Wow,* Great Falls, Montana. The Cascade County Medical Society is sponsoring a 3-day symposium with internationally known speakers, including Dr. Donald Greaves of KUMC. The symposium, approved for 11½ hours credit by the AAGP, offers physicians the opportunity to combine a good educational seminar with a family vacation in Montana. Special entertainment is planned, including a banquet and skating exhibition featuring Olympic skater, John Mischa Petkevich, and the annual East-West All-State Football game. Great Falls is 2 hours from Glacier National Park and 200 miles from Yellowstone Park. Registration Fee: $10. For further information write: R. E. Wynia, M.D., 203 20th St. South, Great Falls 59401.

Aug. 22-24 — The University of Wisconsin Medical School Division of Clinical Oncology will hold its eighth annual National Cancer Conference—*Cancer Chemotherapy '68*—at the Motor Park Inn, Madison. Write: Dept. of Postgraduate Medicine, Univ. of Wisconsin Medical Center, Madison.

Aug. 24-29 — Eighth International Congress of Gerontology, Sheraton Park and Shoreham Hotels, Washington, D. C., and Baltimore, Maryland. Write: Secretariat, 8th International Congress of Gerontology, 9650 Rockville Pike, Bethesda, Maryland 20014.

Aug. 25-30 — Flying Physicians Association, Tan-Tar-A, Osage Beach, Missouri. Exec. Sec.: Albert Carriere, 332 S. Michigan, Chicago 60604.

SEPTEMBER

Sept. 5-7 — American Association of Obstetricians and Gynecologists, Hot Springs, Virginia. Write Robert B. Wilson, M.D., Exec. Sec., 200 First St., SW, Rochester, Minnesota 55901.

Sept. 13-20 — American Academy of General Practice, Las Vegas. For information write Mac F. Cahal, JD, Exec. Dir., Volker Blvd. at Brookside, Kansas City, Missouri 64112.

Sept. 18-20 — National Cancer Conference, sponsored by the American Cancer Society and National Cancer Institute, Denver Hilton Hotel, Denver. Write Roald N. Grant, M.D., Coordinator 6th National Cancer Conference, c/o American Cancer Society, 219 E. 42nd St., New York 10017.

Sept. 25-27 — *Problems Affecting the Cerebral, Renal and Peripheral Circulation,* presented by the Council on Clinical Cardiology of the American Heart Association, and the Cleveland Clinic Foundation, Bunts Auditorium, Cleveland, Ohio. For information write Council on Clinical Cardiology, American Heart Association, 44 E. 23rd St., New York 10010.

Sept. 28-Oct. 3 — International College of Surgeons, 33rd annual congress of the North, Central American and Caribbean Federations and first joint meeting with the South American Federation, Honolulu. For information write the International College of Surgeons, 1516 Lake Shore Drive, Chicago 60610.



Book REVIEWS

ATLAS OF VASCULAR SURGERY, by Falls B. Hershey and Carl H. Calman. C. V. Mosby Company, St. Louis, 1967. 318 pages illustrated. $19.50.

This second edition of the *Atlas of Vascular Surgery* is in many ways a new book. Several sections have been nearly completely rewritten. Some of the newer techniques are presented. There is considerable emphasis on basic principles. This is good in a book primarily written "to instruct residents as well as practicing surgeons in the methods and techniques of vascular surgery." The disease patterns are outlined without the pathological detail which can best be found elsewhere anyway.

The description of the various operative techniques employs a step-by-step method. Only important anatomical points are made. The drawings are illustrative and are not obscured by unnecessary detail of surrounding structures.

The methods and techniques presented are fairly general. There are, however, alternatives in the approach to certain problems which differ in some major way from those presented. This is to be expected, especially in a field as relatively new as vascular surgery. Although there is no discussion of these alternative techniques, this does not distract in a major way from the aims of the authors:

"If this *Atlas* is successful in communicating to the experienced vascular surgeon some helpful idea or in guiding a resident more safely through his first vascular operation, it will have justified our efforts."

It should by the time of this review already have justified these efforts.—*P.H.K.*

ROENTGENOLOGIC DIAGNOSIS (A COMPLEMENT IN RADIOLOGY TO THE BEESON AND McDERMOTT TEXTBOOK OF MEDICINE), by J. George Teplick, Marvin E. Hoskin, and Arnd P. Schimert. W. B. Saunders Company, Philadelphia, 1967. Two Volumes. $38.00 set.

The authors have compiled a radiographic atlas of 2,000 high quality and adequate sized illustrations. These are organized by disease entity and not by radiographic findings.

The book is "intended to provide a concise but comprehensive survey of radiographic findings associated with most of some 800 diseases in the Beeson-McDermott Textbook of Medicine." This is, of course, a large undertaking and I do not feel that any reader will find this a complete "atlas of roentgenographic appearance of diseases in their various phases of onset, progression and complication along with graphic descriptions designed to indicate diagnostic highlights, possible sources of misinterpretations and the frequency and specificity of roentgenologic findings." Covering most of some 800 diseases with 2,000 illustrations and a very limited text just does not allow such thoroughness.

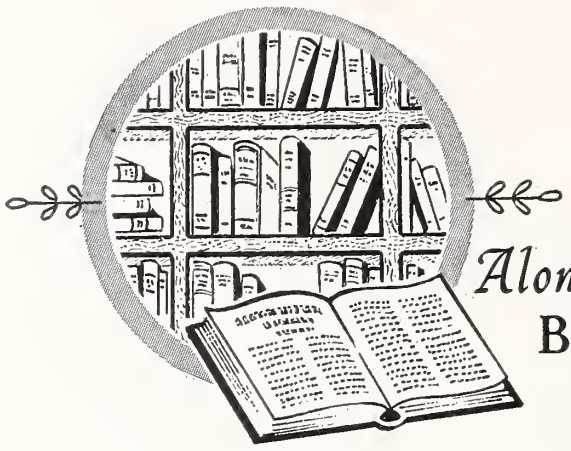
Some rare conditions are illustrated more extensively than relatively common ones generally depending on the importance and specificity of radiographic findings in their diagnosis.

The two volumes have been prepared primarily for practicing physicians and internal medicine and radiology residents and I believe warrant their consideration as library additions.—*R.H.B.*

INSURANCE FOR THE DOCTOR, by Harvey Sarner and Herbert C. Lassiter. W. B. Saunders Company, Philadelphia, 1967. 193 pages. $9.00.

This is a very informative and educational book, but the title is rather misleading. Anyone could benefit from reading it carefully.

Only Chapter 7, consisting of 17 pages, entitled "Malpractice Insurance," is of value *only* to doctors. So why the title "Insurance for Doctors"?—*J.M.M.*



Along The BOOKSHELF

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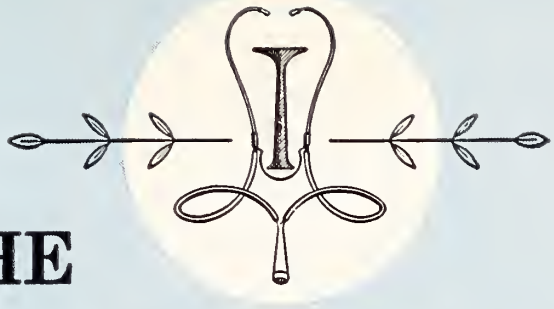
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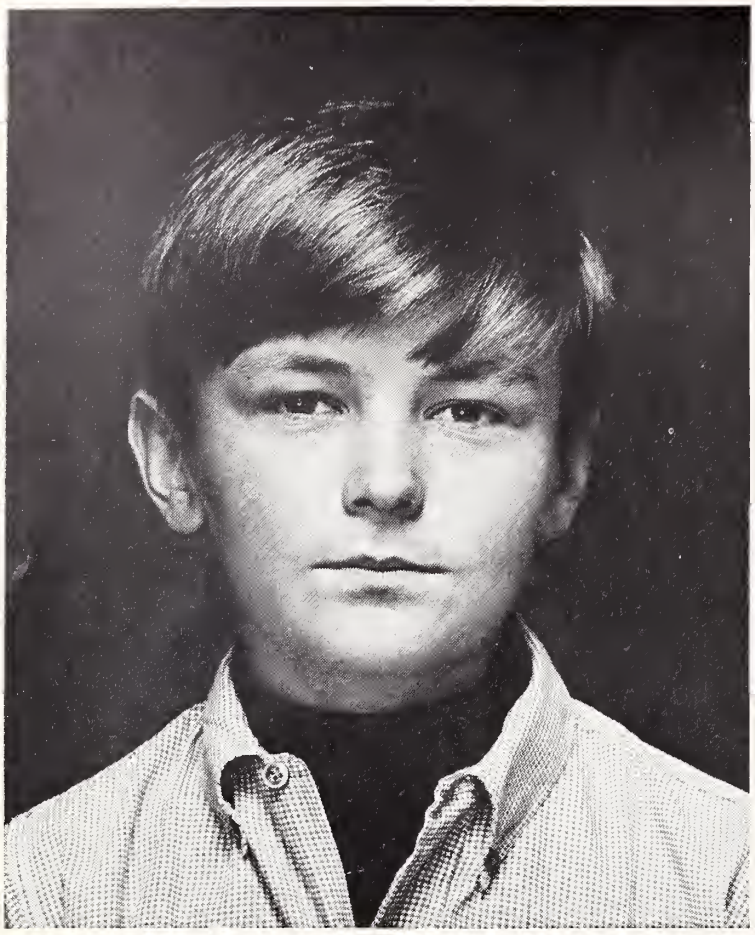


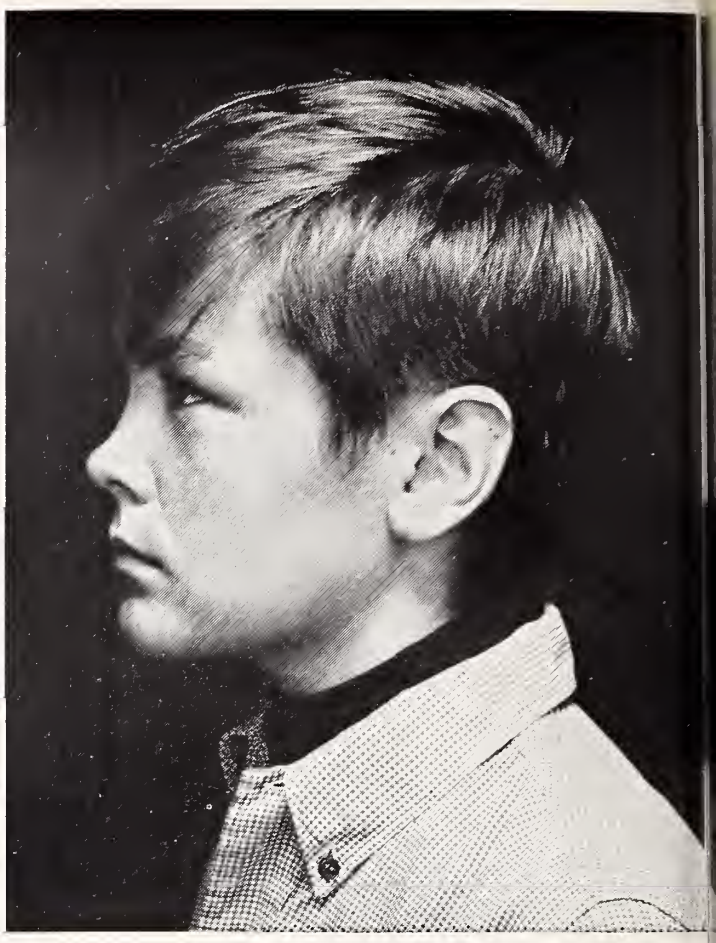
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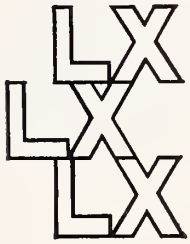
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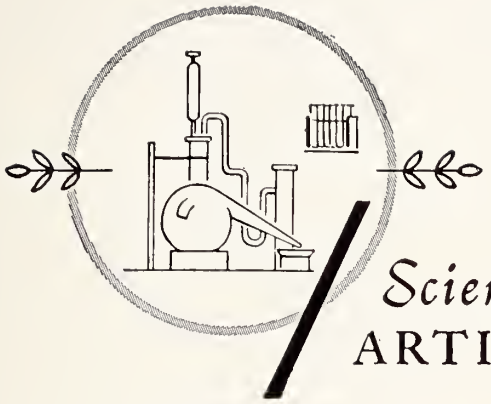
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Nuclear Medicine

Hepatic, Blood Pool and Renal Nuclear Medicine Procedures

MICHAEL S. USHER, M.D., F.R.C.P.(C.),* *Chicago*

Introduction

NUCLEAR MEDICINE may be defined as the application of radioisotopes to diagnostic and therapeutic medicine. The field was virtually nonexistent 15 years ago. Its rapid rise to prominence can be accounted for by the simplicity and freedom from danger of the various procedures. In addition, by nuclear methods we are able to evaluate functions which were hitherto unmeasurable.

The main difference between diagnostic radiology and nuclear medicine is that in diagnostic radiology the radiation is produced external to the patient, the patient absorbs most of the rays, and only that which escapes is recorded on an x-ray film. This is contrasted with isotope procedures in that the isotope seeks out only the organ of interest, and it eminates radiation from within the patient.

The first electrical method of counting radiation was the geiger counter developed in 1908. Radioactive scanning came into its own with the development of the scintillation crystal detector at the University of California in 1950. This crystal was made directional by the addition of collimators. By passing the crystal back and forth over the organ of interest, it became possible to make a map or a picture of the region of interest.

A significant breakthrough occurred in 1963 when Hal Anger developed the stationary camera. This camera has a crystal of 11½ inches in diameter, large enough to map the entire area of interest without moving. This increases the speed of formation of the image by approximately ten times. A system of photomultiplier tubes and a computer mark the position of the arrival of the photon on a cathode ray oscilloscope. A polaroid film is taken of this.

By using this machine it is possible to perform dynamic studies which will be described later.

Isotopes for human use are produced in a cyclotron or reactor. In Brookhaven the generator, or "cow," was developed. With this device we are able to use short-lived nuclides, especially technetium-99m and indium-113m, enabling the administration of higher photon yields with lower patient dose absorbed. In this talk I will discuss certain recent developments, mainly in dynamic procedures.

Liver

NUCLEAR PROCEDURES

The liver is composed of a parenchyma of functioning polygonal cells and a stroma of reticuloendothelial cells. Reticuloendothelial cells in the liver, as elsewhere, are able to engulf and hold colloids. Advan-

* Assistant Director, Nuclear Medicine, Chicago Wesley Memorial Hospital. Visiting Associate in Radiology, Northwestern University Medical School.

Presented at the 109th Annual Session, Kansas Medical Society, April 28-May 1, 1968, Topeka.

tage is taken of this property in scanning. The agents most commonly used are colloidal gold-198 and technetium-99m sulfur colloid. The latter is preferable because of its ideal emission energy and low patient dose rate enabling the administration of millicurie amounts. The rate of clearance of these particles from the peripheral blood stream is proportional only to the hepatic blood flow.

On the other hand, substances such as I-131 rose bengal are metabolized by the liver parenchyma cells in the same location as the BSP or bilirubin. Their clearance from the peripheral blood stream depends upon integrity of hepatic cellular function as well as blood flow. Rose bengal is not as good an agent for scanning as the colloids because the nuclide is metabolized and excreted through the biliary tree. For this reason the region of the porta hepatis is obscured by the isotope as it passes down the hepatic ducts.

The availability of these two types of isotopic examinations enables us to examine hepatic function as well as morphology. A probe is positioned over the patient's ear, a convenient location for measuring peripheral blood stream activity. From a strip chart recording, the activity is measured at 20 and five minutes after injection of 200 microcuries I-131 rose bengal. This gives an indication of the rapidity of clearance of rose bengal from the peripheral blood stream and is index of hepatocellular function. Scans are made of the liver and abdomen at one hour, four hours and twenty-four hours after injection. A scan is then made in the conventional manner with technetium sulfur colloid, or colloidal gold.

The combination of these procedures has enabled us to reliably diagnose the origin of jaundice, whether it be hepatocellular, or extrahepatic obstructive in etiology. All patients with rose bengal retention greater than 86 per cent at 20 minutes have had hepatic cellular necrosis, be it hepatitis, advanced cirrhosis, or acute yellow atrophy.

Between 60 and 85 per cent retention the jaundice can be either of hepatocellular or obstructive origin. The differential can be made by examining serial scans. With obstruction there is periportal accumulation of an isotope. If obstruction is complete, no isotope will be present in the bowel, it will be excreted by the alternate pathway, the kidneys. This is in contrast to hepatocellular jaundice where some activity is seen in the bowel by 24 hours, and there is no periportal accumulation.

Rose bengal retention less than 60 per cent is normal.

Illustrative Cases

Case 1—Mrs. A. M. is a 54-year-old white female entering the hospital with the chief complaint of jaundice. The patient had a colecysectomy in 1955 followed by a common duct exploration and repair of a stricture of a common duct. The patient was in the

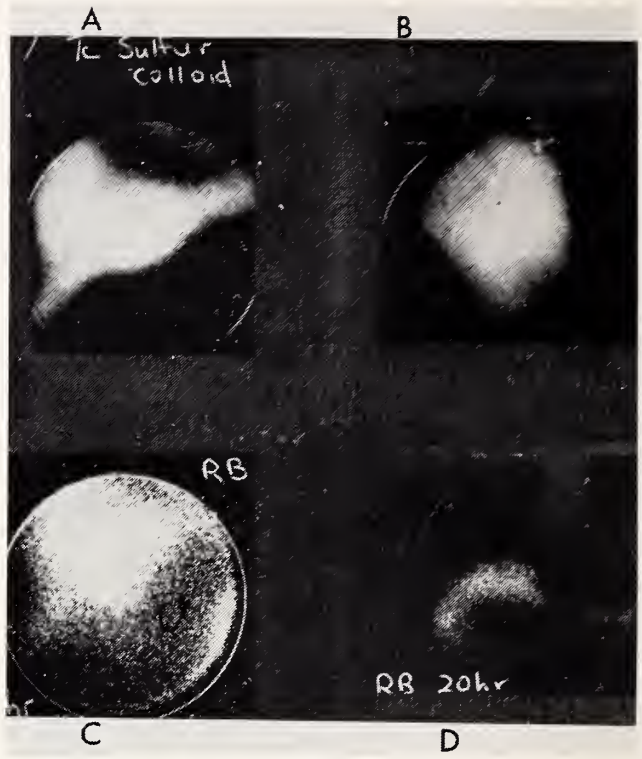


Figure 1

hospital December 1967, with ascending cholangitis. SGOT 20, Alkaline phosphatase 10 units, total bilirubin 2.7, direct 1.0. Rose bengal retention 60 per cent. The technetium sulfur colloid scan is normal *(Figure 1-A, B)*. Serial rose bengal scans demonstrate accumulation of the nuclide in the porta hepatis at 4 hours *(Figure 1-C)*. By 24 hours the isotope is present in the colon *(Figure 1-D)*.

Comment: This is a typical case of partial obstruction of the common bile duct from a stricture. The rose bengal retention was normal and the isotope accumulated in the dilated biliary tree.

Case 2—*Hepatocellular Jaundice.* G. C. is a 71-year-old Greek male whose illness started with epistaxis. Jaundice was noted shortly thereafter and progressed continuously. Laboratory results show albumin 1.6, globulin 4.0, total bilirubin 17.4, direct 6.3, STOT 110, alkaline phosphatase 18, LDH 180.

Liver scan demonstrated hepatosplenomegaly with inhomogenous activity in the liver and increased uptake in the bone marrow *(Figure 2-A)*. Rose bengal retention was 77 per cent *(Figure 2-C)*, the isotope was present by 20 hours in the colon *(Figure 2-D)*. Amyloidosis of the liver, kidney and spleen was found at autopsy.

Comment: The difficult clinical differentiation between hepatocellular and obstructive jaundice in this patient was solved by noting the markedly impaired rose bengal retention and excretion of the isotope into the gastrointestinal tract. The morphology of the liver suggested cirrhosis, a less likely possibility was amyloid.

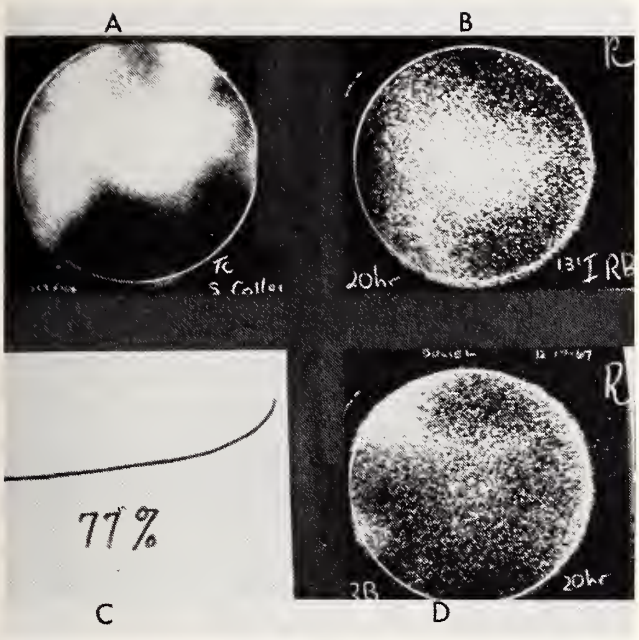


Figure 2

Blood Pool Scanning

A picture of the circulatory system can be made by scanning after the injection of radioactive pharmaceuticals which remain within the blood stream for the duration of the scanning procedure. Albumin remains in the peripheral blood stream for several hours and is most commonly labeled with 131-iodine or 99m-technetium. We have recently been making use of 113-indium acid's property of binding to transferrin, hence remains intravascular.

Placenta

The differentiation of placenta praevia from other causes of third trimester bleeding requires accurate localization of the placenta. After injection of 1 millicurie of 99m-technetium albumin or 10 microcuries of I-131 albumin, the placenta is scanned in the frontal and lateral projections. If scanning equipment is not available, the point count method may be used counting over 9 to 21 sites of the abdomen. Either method gives an accuracy of greater than 90 per cent, the fetal and maternal radiation dose less than $\frac{1}{10}$ that of conventional radiographic placentography.

Case 3—This lady bled in her third trimester. The scan *(Figure 3)* demonstrates the low position of the placenta. Placenta praevia was found at cesarean section. The density below represents the placenta (arrow) ; that above, the liver.

Pericardium

Many methods have been devised to detect pericardial effusion. By scanning the cardiac blood pool and comparing it to the radiographic transverse diameter of the heart, the thickness of the myocardium

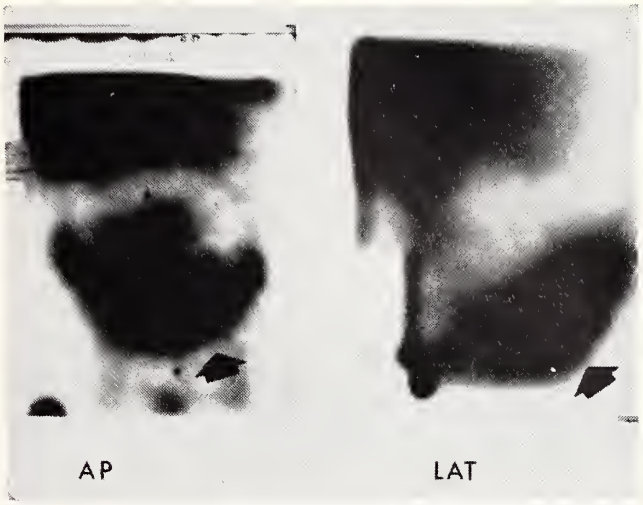


Figure 3

and pericardial space can be determined. A difference of greater than 20 per cent in the two measurements indicates the presence of over 200 cc pericardial fluid.

Case 4—*Pericardial Effusion.* Cardiomegaly was noted in this uremic man. Chest fluoroscopy demonstrated diminished pulsation. The radiographic transverse diameter of the heart *(Figure 4-A)* is more than 20 per cent wider than the cardiac blood pool *(Figure 4-B).* In addition, the cardiac blood pool is separated from the lungs and liver.

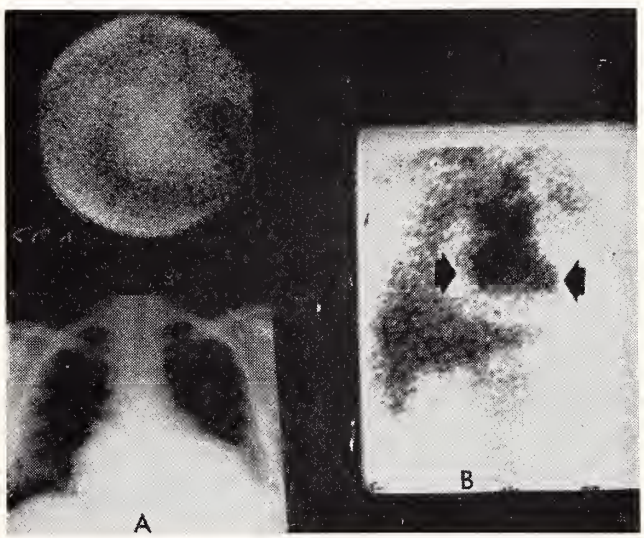


Figure 4

Dynamic Cardiovascular Scanning

The introduction of the sensitive Anger Camera and technetium-99m has made feasible nuclide arteriography and venography. The Anger Camera has a sensitivity of approximately ten times that of conventional scanners. This isotope is ideal because it is a pure gamma emitter permitting millicurie dosage to be administered with minimal patient radiation.

After intravenous injection of a bolus of 99m-

technetium pertechnetate, serial scintiphotographs are taken at five-second intervals. The detector is positioned over the area of interest. The carotid arteries, the middle cerebral arteries, abdominal aorta, renal arteries, and iliac arteries have been examined in this manner.

Case 5—This patient is a 55-year-old white male who went to the hospital with the chief complaint of increasing shortness of breath. The heart blood pool scan shows cardiomegaly. The right sided scinticardi-

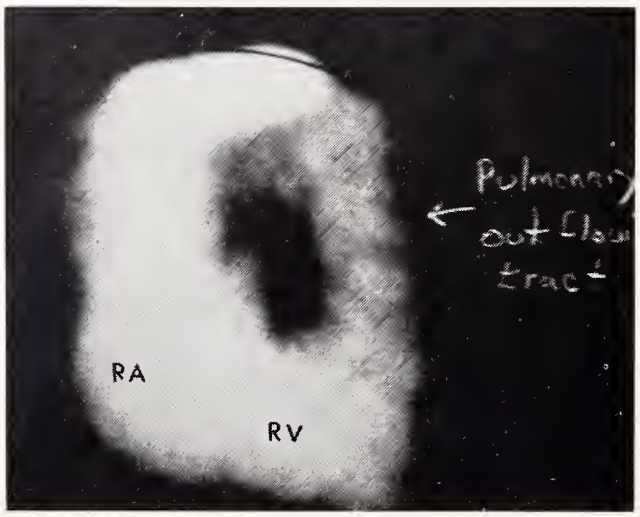


Figure 5

ography demonstrates right atrial and ventricular enlargement *(Figure 5)*. At autopsy rheumatic endocarditis was noted affecting the mitral valve.

Comment: The cardiac chambers are unusually well visualized. We presume this to be due to the patient's congestive heart failure and prolonged circulation time.

Case 6—This normal scintiaortagram was performed by taking serial five-second scintiphotograph after injection for a brain scan. The aorta and iliac vessels are well demonstrated *(Figure 6)*.



Figure 6



Figure 7

Case 7—This asymptomatic 65-year-old white male demonstrates classical appearance of a tortuous atherosclerotic aorta without aneurysm *(Figure 7)*. Physical examination of the abdomen was normal.

Case 8—This case illustrates an aneurysm of the aorta *(Figure 8)* immediately above the bifurcation (arrow). He was admitted with a cerebrovascular accident and this was an incidental finding.

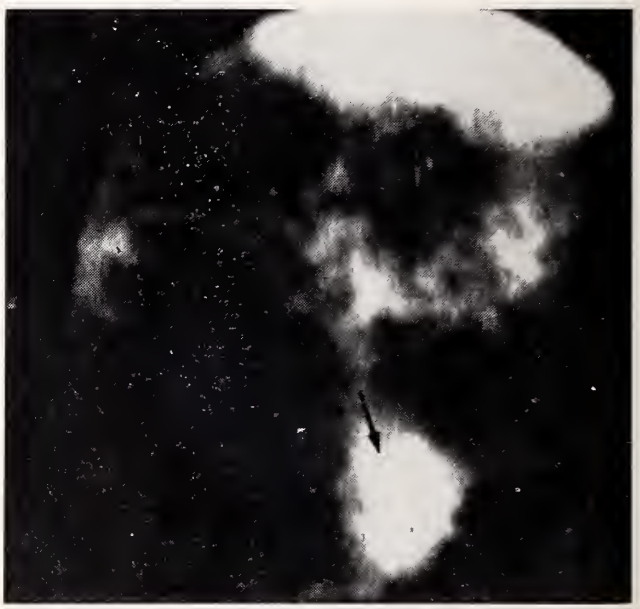


Figure 8

Renal Isotope Studies

Morphology

The diuretic chloromerodrin may be labeled with 203 or 197 mercury. When this radiopharmaceutical is injected intravenously within one to six hours, it becomes bound to renal tubular enzymes. By conventional scanning procedures, the renal tubular mass

can then be outlined. Excretory urography, on the other hand, demonstrates the renal collecting system and contour. The two procedures, therefore, compliment one another. For example, bulges in the renal contour may represent a normal varient, or a peripherally located tumor. A differentiation may be made by noting whether this area functions on renal scan; that is, whether it is a portion of the functioning normal tubular mass. Definitive, but more hazardous procedures, such as renal angiography or laparotomy, can follow.

A recent addition to the above is renal radionuclide angiography. If an area without tubular activities on the scan is shown to have a vascular supply, it almost certainly represents malignant tumor. Much less common exceptions include renal hemartoma or vascular malformation.

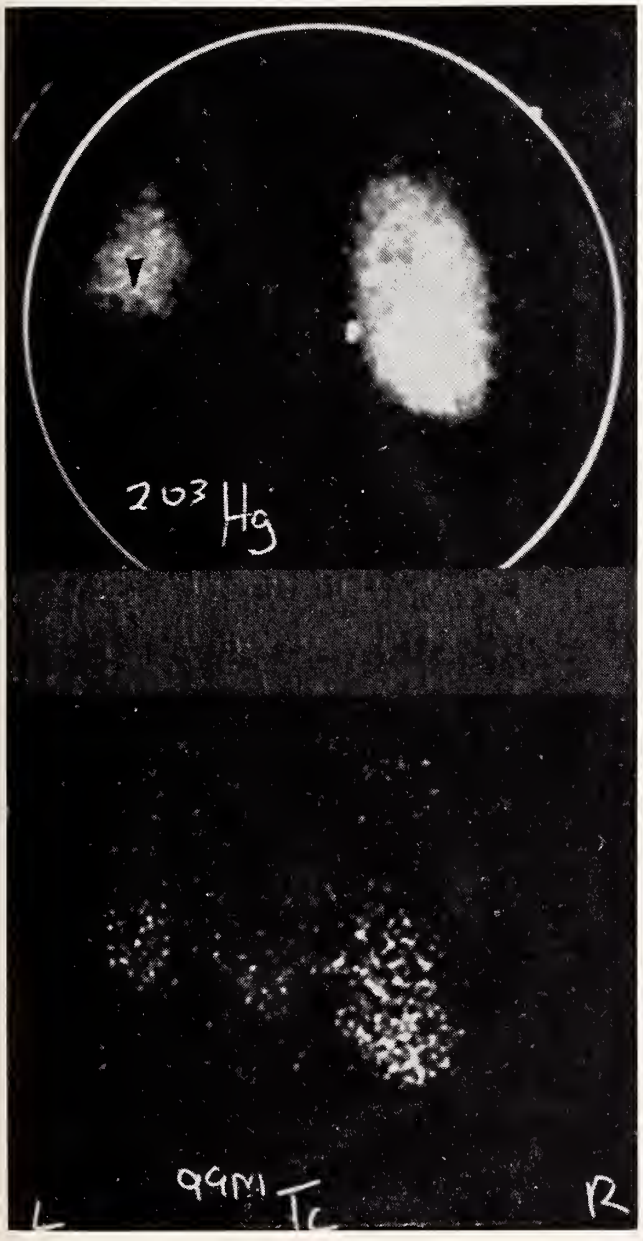


Figure 9

Case 9 *(Figure 9)—Renal Cyst.* 203 Hg chloromerodrin demonstrates a lack of tubules at the lower pole of the left kidney. 99mTc arteriogram shows the region not perfused.

Case 10—*Renal Carcinoma.* The mass at the lower pole of the right kidney does not concentrate chloromerodrin *(Figure 10-A),* but it is perfused on the technetium arteriogram *(Figure 10-B).*

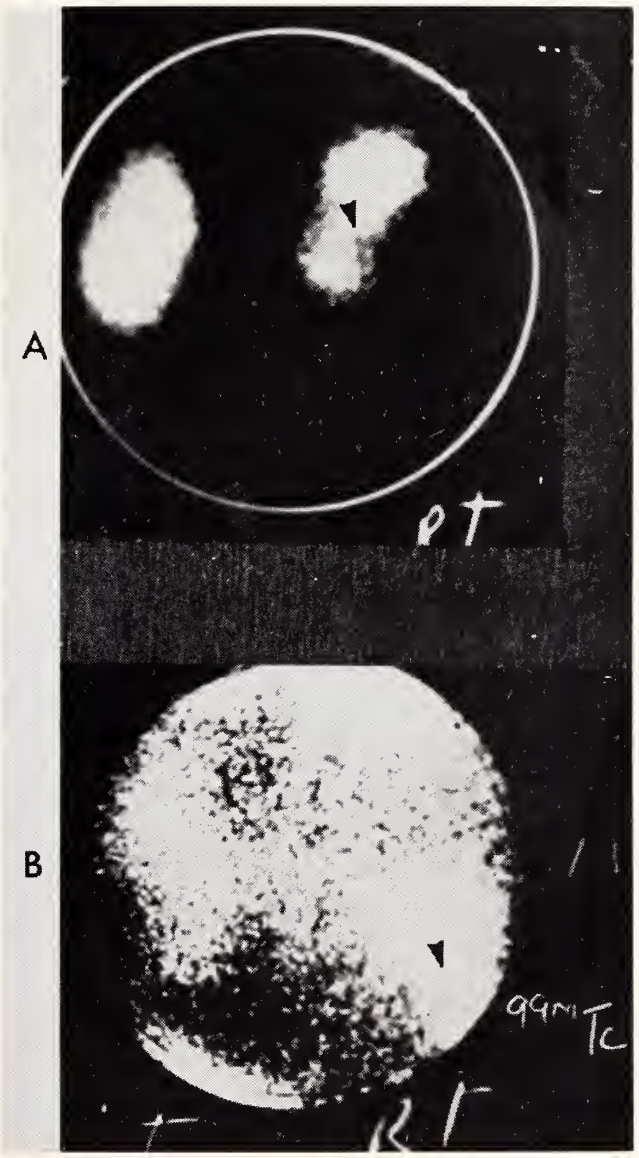


Figure 10

Renography

After intravenous injection of I-131 orthoiodohippurate, the time course of radioactivity is measured by placing a scintillation detector over each kidney. This gives an index of differential renal function. The tracing is divided into three phases. The first phase represents the appearance of the tracer in the renal and lumbar arteries. Phase 2 (Concentration Phase)

depends on the artery delivering the isotope to the renal tubules, and the tubules accumulating the isotope. Phase 3 (Excretory Phase) indicates the patency of the collecting system and the rate of urine flow. Normally this slope is negative as the isotope is washed away from the kidney in the urine.

This procedure is particularly suited to the diagnosis of the unilateral renovascular disease producing hypertension. Many criteria have been proposed for interpretation, including amplitude of the peak, the time to reach this peak, or the slope of the excretory phase. We feel that the most reliable method is the judicious use of the experienced eye, especially noting asymmetries. Combining this procedure with rapid sequence excretory-urography, less than 10 per cent of patients with renovascular hypertension will be overlooked.

In obstructive urography, the third phase shows continued rise. This can be especially useful in the anuric patient to differentiate post-renal from pre-renal and renal failure.

Case 11 *(Figure 11)—Renovascular Hypertension.* This 28-year-old female was discovered to have dia-

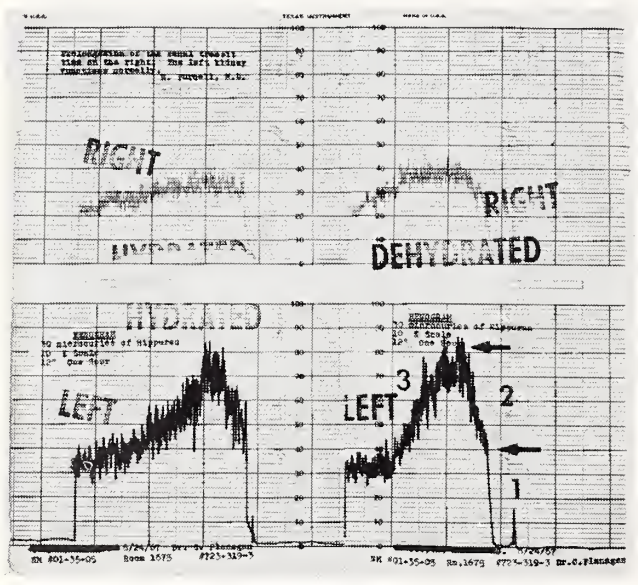


Figure 11

stolic hypertension. The left renogram is normal, it shows the tracer appearance (1), renovascular (2), and excretion phases (3). One division equals 3¾ minutes. The slopes of all three phases on the right are flattened.

The right renal artery was narrowed by fibromuscular hyperplasia. This segment was removed and the blood pressure returned to normal.

Case 12—*Obstructive Uropathy.* The right excretory phase continues to rise *(Figure 12-A)*, while the left is normal *(Figure 12-B)*.

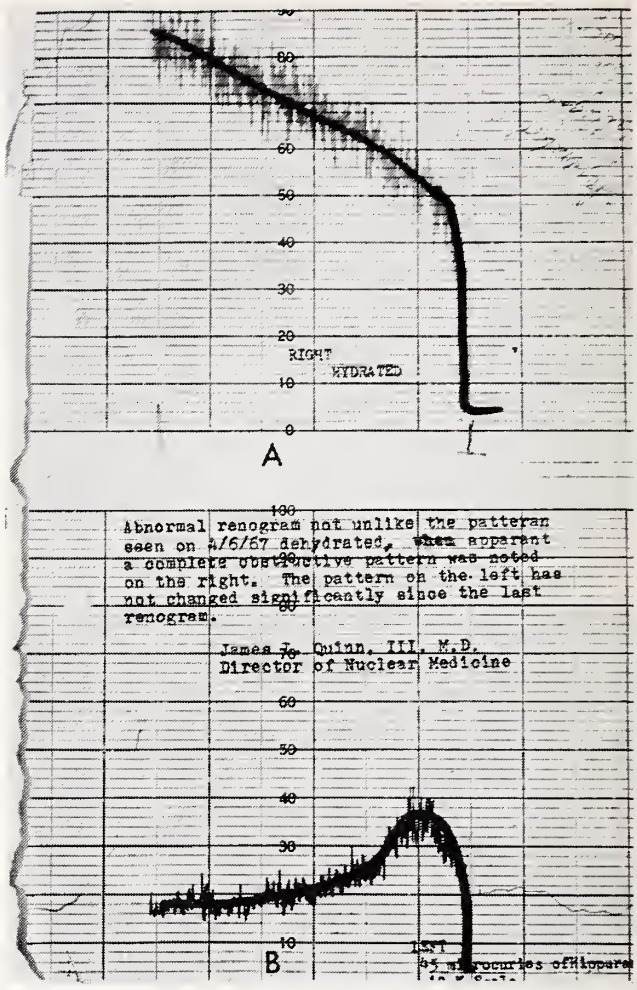


Figure 12

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Wolff-Parkinson-White Syndrome

—*Masking Myocardial Infarction*

ARMANDO PEREZ SIMON, M.D., F.A.C.C.,* ***and***
DAVID GIVNER, M.D., F.A.C.P.,** ***Wichita***

In 1930 Wolff, Parkinson and White[1] described an interesting syndrome characterized by short PR interval; abnormal, wide QRS complex with slurring of the first portion of QRS; and accompanied, in 70 per cent of the cases, by episodes of recurrent paroxysmal tachycardia. Their article aroused much interest and since that time more than 500 papers concerning this syndrome and the occurrence of arrhythmia have been published.

The incidence of Wolff-Parkinson-White syndrome (WPW) is between 0.1 and 3.1 per thousand in apparently healthy individuals.[2] Although 60 to 70 per cent of adults with WPW show no evidence of organic heart disease, it may be associated with myocarditis, thyrotoxicosis, ventricular hypertrophy, bundle branch block, acute rheumatic carditis, myocardial infarction, etc.

According to Wolff this disorder is congenital and hereditary, and its occurrence in newborn and identical twins supports this contention. There are also reports of several cases in a single family.

Diagnostic errors are made in more than one third of patients with this syndrome and abnormal appearance of the tracings mask other pathologic entities. Wolff states that the grossly abnormal appearance of the tracing frequently leads to an erroneous diagnosis of heart disease.[4] The most serious error is the false diagnosis of myocardial infarction, due to the presence of QS deflection in leads II, III, and aVF. However, there are cases in which the tracings may mask the signs of myocardial infarction.

Although treatment is usually not required in cases of WPW with normal sinus rhythm, it is important to recognize the basic pathology through the use of such drugs as quinidine, amyl nitrite, procaine amide, atropine, etc.,[5] which interrupt the anomalous excitation. We agree with Goldman, et al.[6] concerning the use of atropine sulfate as a diagnostic procedure in cases of WPW, especially when the possibility of myocardial infarction has been suspected and the usefulness of the EKG in the diagnosis is almost vitiated by the presence of the anomaly. Our experience in using atropine sulfate, intravenously, in different types of arrhythmias has invariably given favorable results with no significant side effects.

Wolff and Richman stated that QS deflection has no special significance and occurs in uncomplicated cases of WPW as well as in those with posterior infarction. We are not able to differentiate a QS deflection in those with infarction from those without it. In cases of WPW, the diagnosis of posterior infarction solely on the basis of QS deflection cannot be made with certainty unless a procedure is used to interrupt the anomaly. In most cases QS deflection is replaced by a conspicuous QR wave. On the other hand, there are instances when a characteristic heavy and slurred anomalous component initiates the QRS group of deflection and overshadows a real Q wave *(Figure 1)*, therefore masking a definite sign of myocardial infarction.

In one of our cases the EKG did not show a Q wave in lead II and a bizarre Q wave was present in lead III. There was a slurred component in the upstroke of QRS in aVF lead—the delta wave. The patient was a 42-year-old male who, one year ago, had a characteristic and unquestionable clinical picture of acute myocardial infarction. He was admitted to the Veterans Administration Hospital in Wichita on September 12, 1967, complaining of moderate burning sensation behind the midsternal area. The physical examination was unremarkable, with a blood pressure of 120/80 and pulse rate approximately 80 per minute; temperature was normal. The first tracing *(Figure 1)* indicated Wolff-Parkinson-White syndrome with a heart rate of 75 per minute. There was a wide, bizarre Q wave in lead III; lead aVF did not reflect a well outlined Q wave, and there was no Q wave in lead II.

The second EKG *(Figure 2)* was taken after the patient received 2 mg of atropine sulfate intravenously. In addition to minor changes in other leads it was important to note that a Q wave now appeared in lead II. The bizarre Q wave in leads III and aVF changed completely and the new tracing, following atropine sulfate, showed definite and well outlined deep Q waves in leads III and aVF.

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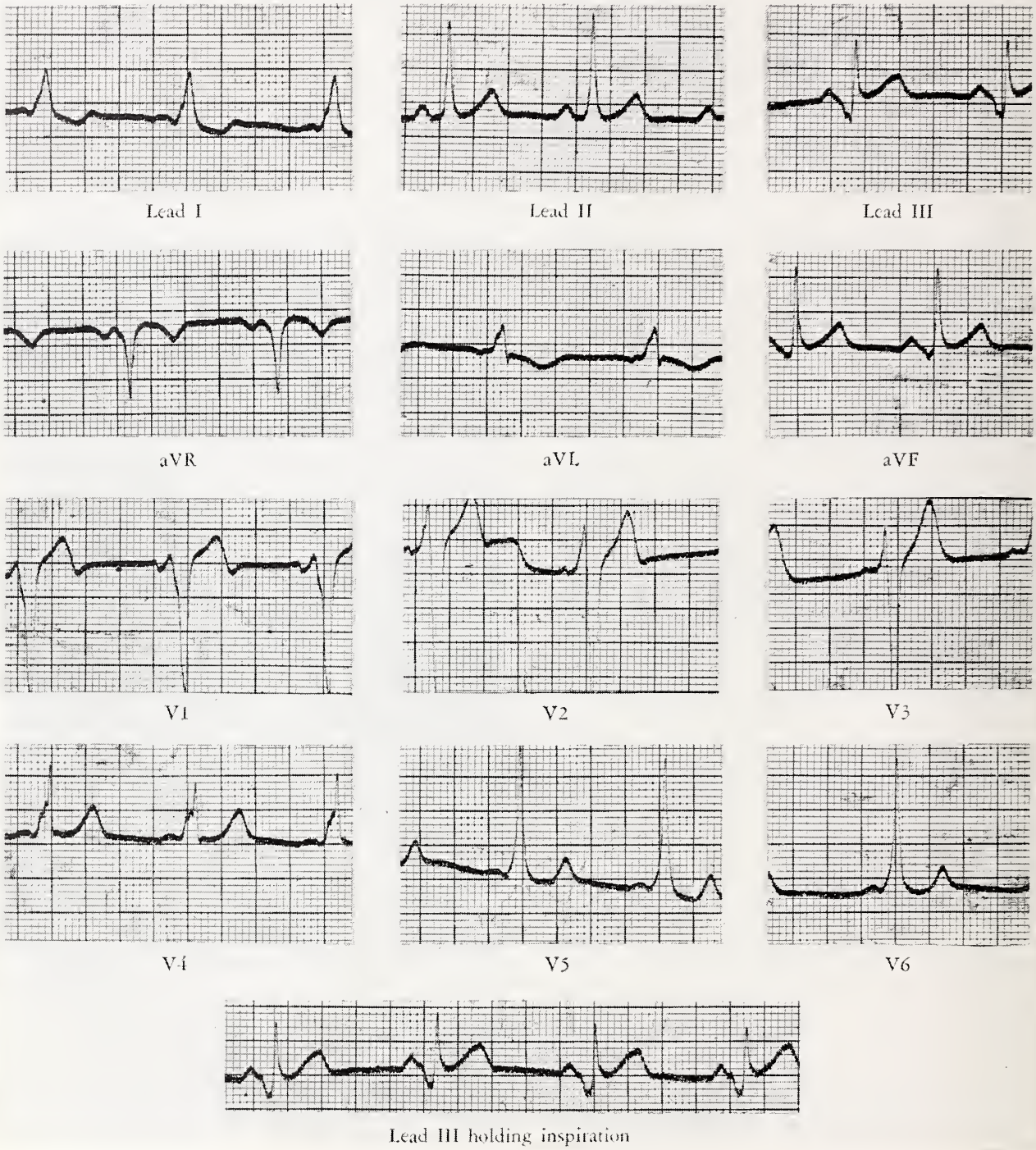


Figure 1. Before using atropine.

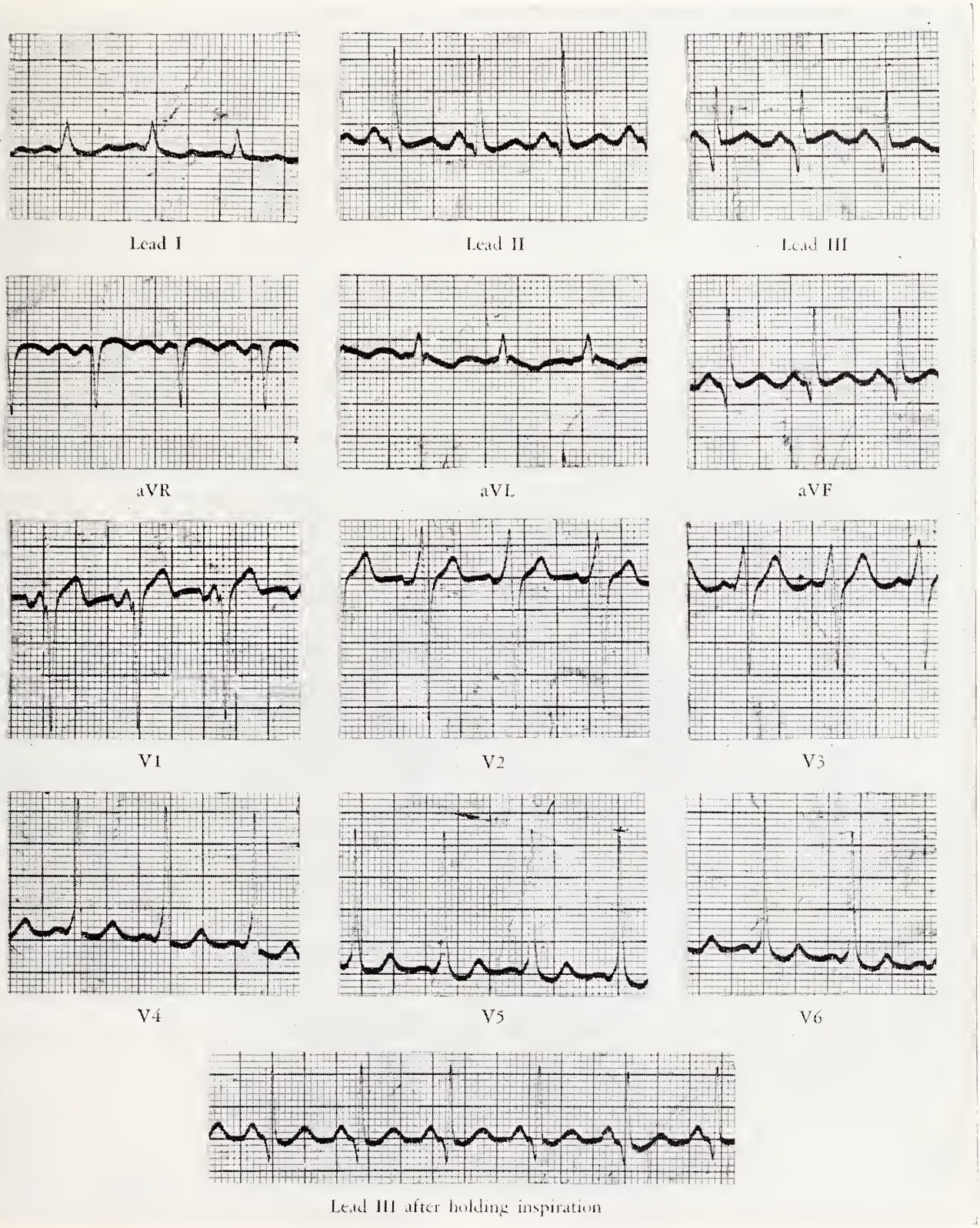


Figure 2. After using 2 mg of atropine IV.

Summary

The diagnosis of myocardial infarction in the presence of Wolff-Parkinson-White syndrome is very difficult on the basis of QS deflection alone, which may occur in leads II, III and aVF. On the other hand, there are cases of WPW in which the anomaly masks occult Q waves in the leads necessary to make a diagnosis. The spontaneous or induced shift, back and forth from the abnormal EKG is very useful. Many drugs, such as quinidine, amyl nitrite, procaine amide, and atropine, are available to induce this conversion and help to make a definite diagnosis. Atropine sulfate given intravenously is preferred by us because we have experience in using it in different types of arrhythmias without significant side effects and with good results.

In the case presented here, the patient had a history consistent with acute myocardial infarction one year previous to this hospitalization. Atropine sulfate given intravenously unmasked the signs of an old posterior myocardial infarction.

The latter conclusion was based on the appearance of a Q wave in lead II and a well outlined, deep Q wave in lead III. Also, the small and indefinite wave after P in lead aVF, which is consistent with a delta wave, became a deep and unquestionable Q wave.

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KANSAS PARENTS' ASSOCIATION OF HEARING-HANDICAPPED CHILDREN

On June 29, 1968, representatives of parents' associations of hearing-handicapped children met in Salina to establish the Kansas Parents' Association of Hearing-Handicapped Children. At the meeting Donald Otis of the Salina Parents' Association and Roger Kanet of the Lawrence Parents' Association were selected as temporary co-chairmen of the state group.

This year, for the first time in history, pre-school programs for the seriously hard-of-hearing have been established in public school systems throughout the State of Kansas and will begin classes in September. This has been made possible by the appropriation of federal funds, which are administered through the Kansas Department of Special Education. The purpose of the pre-school programs is to provide deaf and hard-of-hearing children, from the age of three, with the training necessary for them to learn to lip-read and to talk, so that they will be able to enter the public school system when they reach school age.

The Kansas Parents' Association of Hearing-Handicapped Children will promote parent and public education on the problems of the hearing-impaired, in order to help them become active, participating members of society, leading full and productive lives. The Association will also facilitate the development of other programs throughout the state, by helping local parents' groups and supporting the passage of legislation for further programs.

The state association wants to obtain the names of as many parents as possible and to help in the establishment of additional local chapters of the association. All parents of pre-school and school-age hard-of-hearing and deaf children in the State of Kansas are asked to contact one of the co-chairmen: Mr. Donald W. Otis, 141 Hillside Terrace, Salina, Kansas 67401 (Phone: 913: TA 7-6917) or Dr. Roger E. Kanet, 2616 Alabama Street, Lawrence, Kansas 66044 (Phone: 913: VI 3-6537).

1968 MEMBERSHIP DIRECTORY

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Lawyers and Physicians

Professional Responsibility

THE HONORABLE ROBERT H. KAUL,* ***Wamego***

I THINK IT MAY BE STATED with accuracy that medicine and law have more characteristics in common than any other two professions.

Both require direct contact with client or patient, personal services, and communications, confidential in nature and privileged under the law. Of all professions doctors provide the most personal services; lawyers are a close second in this category. Both are governed by high standards of ethics; both require licensure by the state. Both succumb in some degree to the glamour of a Dr. Kildare or a Perry Mason. Both professions are often the subject of similar criticisms. Members of both have been described as a collection of reactionary die-hards. Both have accumulated such a vast backlog of knowledge and experience that specialization in specific areas has become a necessity.

Both professions have a long history of contribution to the betterment of mankind. I must admit, however, progress in the medical profession in our day has been more dramatic than that in the law. Since the turn of the century, life expectancy in the United States has increased from 47 to something over 70 years. Some of the more notable developments in bringing this about were the isolation of insulin in 1921; the discovery of penicillin in 1928; streptomycin in 1943; polio vaccine in 1954; the great advancements in treatment methods for cardiac and respiratory diseases; and the important new approaches to mental health. Almost five million Americans are living today who would be dead if the mortality rate of just 25 years ago still prevailed. It is interesting to consider how many of us are among those five million.

Lawyers have always occupied a strategic role in the ordering of our society. Great problems of social order stemming from economic, political and social questions have been, and still are, placed in the hands of lawyers for definition, and in the hands of judges for ultimate resolution. The lawyer today is still the indispensable middleman of our social progress.

The creativeness and independence of the professional mind has played a major role in the development of our democratic society. Many of the founders of our government were men who earned their livelihood primarily in professional occupations. Three doctors of medicine signed the Declaration of Independence. Historically, the growth of our nation in its democratic character has been nurtured by the spirit of professionalism and the many freedoms symbolic of it. If such growth is to continue, I believe a primary moving force will be the continuance of the spirit of professionalism with its creativeness, self-reliance and freedom. Some red flags of warning have been posted in recent years indicating a danger of erosion to the spirit of professionalism in the concept of which I use the phrase. We are seeing a trend in our society, with particular respect to our two professions, to restrict more and more the scope of private professional enterprise and certain individual rights for the avowed purpose of gaining social justice. If professions are forced to sell to any major extent their labor and service to the state in the guise of social duty, this spirit of professionalism, as we know it, will soon be washed away. We, the professionals, may be to some extent responsible for the surge of this trend.

By the very nature of our occupations, we have a tendency to react rather than act. Medicine is reluctant, as it should be, to prescribe the use of new drugs or new therapy until safety is assured by thorough testing. Likewise, the law hesitates to discard tried and true concepts to make way for experimentation; we are averse to look only to solutions of problems without regard to consequences. This basic precept of not offering a quick solution or remedy until we are reasonably sure that we know what we're doing is still sound and the only sure path to real progress. But in our involvement, in keeping up with the ever-expanding horizons of medical science and legal knowledge, we cannot afford to sit by idly and allow others to characterize our professions, or portray false and distorted pictures to the American people.

What then are some of the current demands on professional responsibility with respect to our professions?

At the outset, I should say that your presence here is in itself tangible recognition of an important segment of professional responsibility. I am referring to the responsibility of both professions in the administration of justice; a highly necessary service, the

* Justice, Supreme Court of Kansas.

Presented at the First Annual Kansas Medical-Legal Conference, February 29, 1968, in Topeka.

efficient and satisfactory accomplishment of which becomes more difficult and complicated day by day in the rapidly changing society of our time. The administration of justice, of course, is the primary responsibility of the legal profession. However, it is noteworthy that in litigation, other than that commercial or contract in nature, it is estimated that today more than 75 per cent of court cases require some type of medical participation. In this area the medical profession has a direct joint responsibility to aid in the administration of justice by providing expert, impartial, medical testimony and reports. Meetings such as this provide a forum for the interchange of ideas and professional positions so that each profession can better understand and appreciate the problems of the other. In those situations where the administration of justice requires medical participation, it is mandatory that we work together. If we fail to do so, each profession will suffer and even more important the public will be the real loser.

I don't propose to discuss specifically the problems encountered in this limited area of professional responsibility, which might be more accurately termed interprofessional responsibility. It appears problems in connection therewith will be explored in depth in the sessions which you have scheduled for later this afternoon. I feel compelled, however, to comment briefly from the judges' viewpoint on some matters relating to the production of expert medical testimony during a trial. My observations in this regard stem from my experience of 17 years as a trial judge in a court where a high percentage of cases dealt with personal injuries, resulting from automobile negligence. My experience was that generally doctors abhor attending court, either in the capacity of an expert witness or that of a treating physician. There is nothing pathological or surprising in this trait, in fact it is a very normal one. Few people like to go to court; but I would also point out a parallel, not many people look forward with gleeful anticipation to a visit to the doctor's office or confinement in a hospital. Courtrooms and hospitals have this in common. The patrons are usually people in trouble.

What does the expert witness have a right to expect from the judge? At the outset, it must be understood that our common law scheme for the administration of justice is founded upon a system of seeking out the truth in adversary proceedings. This adversary approach is most vividly demonstrated in cross-examination. Since the jury's decision may, to a great extent, depend upon the weight or credibility to be attached to the testimony of a certain witness, his qualifications and competency must be tested, for the most part, by cross-examination.

These matters are governed by well-established rules of evidence and any excursion beyond the well-defined limits should be brought up short by the judge. It is always improper and unnecessary for counsel to embarrass or harass a physician and it is the court's responsibility to make certain that this is not permitted. Fortunately, in the great majority of trials, this is no problem. When it does occur it usually can be attributed, in my opinion, to a judge who is either inexperienced or lacks the fortitude to keep counsel within bounds. A witness is entitled to guidance from the court if a question is confusing or subject to more than one interpretation, and this is so irregardless of an objection. He is to be protected from double-barreled questions, and he is not required to answer questions that misstate or misquote his answers given in direct examination, or questions with an unfounded hypothesis—such as "when did you stop beating your wife." The courteous witness has the right to expect and usually receives courteous treatment. In most lawsuits, where a witness or an attorney loses his temper, the client is the loser.

Most courts in this state recognize the time demands of an expert witness. A medical expert is almost always taken out of turn upon counsel's request so that he is not unnecessarily detained in court. This was the practice in my court and I believe it is generally followed. The same holds true in the scheduling of cases. Most courts will accommodate when it is possible to do so without disorganizing a crowded docket.

Turning to some broader aspects of professional responsibility, I would like first to note a few characteristics, inherent in our professions, which are not germane to any others. The public trust and special responsibilities imposed upon the practice of both medicine and law in their very nature go far beyond the responsibilities found in any other profession. A doctor, licensed by reason of his qualifications and training, is entrusted with the health, well-being and even the life of his patient. The lawyer is not only entrusted with the defense of life and liberty but also property, family relationship and the disposition of property after death. No other private citizens, professional or otherwise, have such power. Only a lawyer can represent in court the interests of other persons. He can enter into settlements and receive money in his client's behalf without bond. On his signature alone he may issue subpoenas and attach property. There are many *ex parte* procedures available where, without contest or adversary, the court must rely solely upon the lawyer's word. The practice of law is now, more than ever before in history, a public profession involving a public trust. The United States Supreme Court has recently gone further than ever in insisting on the right to counsel—in calling on lawyers to be the protectors of the accused, the indigent, and most recently in certain cases, the juvenile.

By the trusts imposed upon both professions the interest of the public presupposes that the members are not only possessed of the required skills but of the utmost integrity and that practitioners in either profession will continue to meet the professional standards. In spite of occasional accusations aimed at our professions, as group entities, I believe the individual practitioner in each case still enjoys the trust and esteem of the public.

An important factor in the establishment of this public trust has been the intangible sense of professional responsibility or professional conscience instilled in our members, past and present, by tradition, training and pride. It is apropos in our discussion to pose the question—is this sense of professional responsibility or conscience in danger of erosion in the light of current trends in professionalism?

There are many critical problems confronting both professions; however, I shall confine my observations to recent developments affecting both, which I believe to be critical to the preservation of the traditional concept of professionalism, historically entertained by each.

First, I think it relative to consider public or government encroachment into areas heretofore for the most part, if not solely, occupied by private professional activity.

From the very beginning of recorded history the state or governing authority has shown an interest in the responsibilities attached to our professions.

In the Code of Hammurabi, fixed in time by archeologists as somewhere around 2500 BC, about 1,000 years previous to the Ten Commandments, several sections were devoted to physicians and judges. There was also reference to the responsibilities and liabilities of agents and scribes who served in a capacity similar to that of lawyers today. Malpractice by a physician and bribery of a judge were both recognized as dangerous to society and penalties were prescribed. The code even hinted at socialized medicine by setting fees for certain operations. For instance, in Section 215 a fee of ten shekels of silver was allowed a physician for operating a severe wound with a bronze lancet, except that if the patient were a slave a fee of only two shekels was allowed according to Section 217. Under Section 218 if the operation proved a failure, resulting in death, the physician had his fingers cut off.

Provision for a lapse of integrity on the part of a judge wherein he might alter a judgment, once pronounced, was made in Section 5 which called for a forfeiture of the judge's seat and payment of a judgment twelve-fold by the judge, a provision which should have been a substantial deterrent to the acceptance of a bribe.

Ever since the time of Hammurabi governments of all civilizations and of all nations in modern times have evidenced some public interest in the professions of medicine and law. In this country the history of law and medicine reflects an effective, mutually respectful interaction between the members of our professions and government at every level. The duty to serve any citizen in need, indigent or otherwise, has always been recognized by our professional ethics. Generally, the professional conscience has been sufficient motivation to fill the need. However, in time of special need or during a lapse of professional responsibility the government has stepped in. As early as 1798, the Fifth Congress established the marine hospital system, the forerunner of the United States Public Health Service. Its activities expanded through the years—with public health service for members of the armed forces and their dependents; for merchant seamen; for the disabled and blind; for the Indian service and many others. The final expansion was the medicare program under Title XIX of the Social Security Act, a radical departure from the previous concepts of government participation. According to Dr. Charles Lowell Hudson, 121st President of the American Medical Association, all of these previous problems throughout the years have been carried out with the cooperation and endorsement of the American Medical Association.

With respect to the medicare program, Dr. Hudson, in speaking to the Economic Club of Detroit, in January 1967, puts the American Medical Association in a position contrary to that previously held with respect to government participation in medical affairs. He stated, "Our opposition to medicare was not because it was another federal program, but because it represented an entirely new concept."

Dr. Hudson expressed fear and alarm that increased government control with its parallel loss of freedom in the medical profession, as in other professions, may tend to eliminate the incentive which the physicians, the medical researcher, and their professional societies have had to search for improvements in existing methods and to innovate by discovery or by developing entirely new ones. Dr. Hudson argues that the greatness of our society is not in socialism but in an increased vitality of freedom. He warns that to justify this outlook all of us in the private sectors of professionalism must redouble our efforts to meet the needs of this nation and its people.

In law the most pronounced and significant lapse of professional responsibility has been the failure in some states to provide due process of law measured by current standards to less fortunate citizens and in particular representation for the indigent criminal accused.

In the case of our own state, I would hasten to say that provision for legal representation for one accused of a felony was provided for by the territorial legislature, reenacted in 1868 and has been contin-

uously a part of the law of this state ever since. It is true that here in Kansas we have been called upon by recent decisions of the United States Court to broaden and refine our original concept of furnishing legal assistance to the indigent criminal, namely, by furnishing counsel on appeal and in post convictions procedures. This has been accomplished without any fundamental or basic changes in our Kansas procedure.

More recently, the legal profession has had thrust upon it a demand to furnish legal assistance in civil matters to the improvident in need, even though for many the legal profession has supplied this need through voluntary organized legal aid societies and by the voluntary service of the individual lawyer. However, there is evidence that we in the law have failed to fully meet the need by our voluntary efforts and, hence, the move into the vacuum by government action through the so-called war on proverty programs. This is a consequence which is always the end result when professional responsibility falls short of the demands of our rapidly changing society.

Some 60 years before Dr. Hudson gave his warning of the threat to professionalism the late Dean Roscoe Pound wrote that the lawyer has a creative task before him to be carried out in bar associations, in the legislature, and as a citizen in maintaining the law as an effective instrument of justice, and to further its development. Today in a nation of two hundred million people, the causes of popular dissatisfaction with the administration of justice, of which Dean Pound wrote in 1906, remain the central and even more pronounced problem of the legal profession. The orderly and expeditious processing of litigation is a right which any citizen should be able to ask of our judicial system no matter what his station in life or how meager his resources may be. Candor compels us of the legal profession to admit we are short of the goal.

Since there has been this encroachment in an area previously occupied by private professionalism, what should be our reaction? Should we, through our professional societies and as individuals vacate or withdraw entirely leaving the responsibility solely to public administrators to see that medical and legal services are provided to this entire class of citizens? We could well say, and many will, "Good riddance, we're done with a financial and bothersome burden." Without the influence of our professional societies, how long would professional standards be maintained? What would be the damage to the private professional image if medical and legal services to a large segment of our citizenry is to be dispensed as services of common market variety without discipline of private professionalism. Obviously, these matters should have our continued concern and our deep involvement.

One other current development which may portend a change in another aspect of the state-professional relationship is worthy of mention.

Even though the state has, through its prerogative of licensure, established standards of educational qualifications and certain minimum standards for the measurement of professional conduct, our professions have been traditionally self-disciplined. While procedures and examining boards have been legislatively created, the actual measurement of professional conduct has been left up to professional societies or the professional members of the statutory boards, or in the case of lawyers, members of the profession sitting as judges. It has always been the belief of lawyers and doctors that they have responsibilities to the public, far more exacting than merely to obey the laws of the state.

Language used by the United States Supreme Court in the recent case of *Spevack v. Klein* has cast some doubt as to the propriety of our traditional concepts of professional self-discipline. The *Spevack* case relates only to lawyers but it appears that principles involved would apply to other professions as well. *Spevack* was disbarred in proceedings in New York because, claiming the Fifth Amendment, he refused to answer questions pertaining to his professional conduct and to produce records which he was required to keep by law. In reversing disbarment by the New York Court, the United States Supreme Court specifically overruled the previous law pertaining to disciplinary matters, last stated in 1961 in *Cohen v. Hurley.*

At this early date the impact of *Spevack* on the power of a profession in self-disciplinary matters is not clear. The decision was rendered by a split decision, it could be described as a plurality, rather than a majority since only four Justices joined in the majority opinion, the decision being reached by the concurrence of a fifth Justice. The remaining four dissented and expressed their views in sharp language in two separately written dissents.

The reasoning of the majority appears to be based on the principle that "Lawyers enjoy first-class citizenship and cannot be regulated to a watered down version of constitutional rights." No one would deny a lawyer or a doctor his full constitutional rights as a citizen, but what about his rights as a professional practitioner? With all the privileges and extraordinary powers enjoyed by reason of his license to practice his profession, is he still only obligated to the obeyance required of an ordinary first-class citizen, a class made up of all citizens as so often and correctly stated by the same court?

The decision has received much unfavorable comment by writers and eminent authorities in the field who express grave concern that the traditional concept of professionalism may have received severe injury.

If the decision means, and some commentators have given it such import, that professional disciplinary proceedings are criminal in nature, subject to the tests of due process in criminal law, then indeed the traditional concept of professional responsibility has undergone a decisive alteration.

The responsibility expected and required of our professions has always been much more than merely rendering an honest dollar's service for a dollar in cash expected of an ordinary citizen. Our professions not only have the responsibility of continued service in the traditional professional manner but they have an important role in the overall responsibility of all citizens to prove that under our American System of free enterprise, by doing things the American Way we can accomplish more than any other system on earth.

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The Working Board, composed of thirty-one doctors who have served one or more AMDOC assignments, advise doctors going to locations in his world areas of service.

TEMPO, General Electric Company's Center for Advanced Studies, has made AMDOC a grant to cover computerizing the list of doctors interested in AMDOC. This is already being done and will be followed by the computerization of a system matching volunteer doctors to needy hospitals.

Ask Dennis G. Karzag, Executive Secretary of AMDOC, 27 East Canon Perdido Street, Santa Barbara, California 93101, for more details and copy of AMDOC's publication which informs its readers of current programs and reports of physicians returning from abroad.

RENO COUNTY AUXILIARY WINS HEALTH MOBILIZATION AWARD

Outstanding service during a National Safety Council-directed home safety program inventory won a Division of Health Mobilization Award for the Woman's Auxiliary to the Reno County, Kansas, Medical Society.

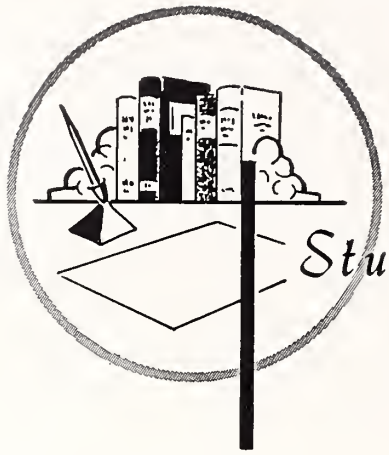
The award was presented during the 45th annual convention of the Woman's Auxiliary to the American Medical Association held June 16-19 in San Francisco. Robert Smith, M.D., assistant surgeon general, HEW's Division of Health Mobilization, made the presentation.

During 1967 the Reno County Auxiliary served as one of the centers for the Home Safety Program Inventory carried out in the north central states. The program consisted of a series of questionnaires distributed and collected by Auxiliary members. Business, industry, municipal government departments and agencies, schools, hospitals, and civic groups were queried and asked to describe their safety activities.

On the basis of the inventory, the National Safety Council presented a report to the community which serves as a guide to future program planning on home safety. Common recommendations to schools are for better safety education programs. Hospitals are often advised to strengthen their education to the public.

Mrs. Sally Jarrott, Hutchinson, served as Safety Chairman for the Kansas Medical Auxiliary. Noted for her work in safety, Mrs. Jarrott organized the Kansas Safety Council and served as chairman of its home division in 1967.

The American Cancer Society's Professional Education Program has a twofold purpose: to save lives and reduce suffering from cancer. Members of the medical profession interested in this program, call your local ACS office.



Narcolepsy

GARY L. PACK, M.D.,* ***Richmond, Virginia***

IN MODERN TIMES Gelineau of France is generally credited with having been the first to describe the disease narcolepsy, in 1880. He wrote, "I propose to give the name narcolepsy to a rare, or, at least to the present, little recognized malady characterized by an overwhelming desire for sleep which is sudden in occurrence, brief in duration, and recurs at variable intervals." Thus, Gelineau was the first to use the word narcolepsy and went on to describe "a new species of neurosis" that was not epilepsy.

Following Gelineau's paper, there was a great deal of confusion about what narcolepsy really was. The term was frequently used to describe any diurnal sleep, or narcolepsy was often used to mean any persistent sleep of any nature. It was looked upon as a variant of epilepsy. This confusion continued until 1926 when Adie wrote his comprehensive article on narcolepsy, "a disease sui generis."

Adie described 15 cases of narcolepsy and emphasized two kinds of attacks—sleep attacks and cataplexy. As a possible mechanism in this disease, he accepted Pavlov's theories of inhibition (a subject to be discussed later).

As we know it today, narcolepsy consists of a tetrad, not all of which are present in each case. These components are:

1. Sleep attacks (of variable duration).
2. Cataplexy.
3. Sleep paralysis.
4. Hypnogogic hallucinations.

1. The most common component of this disease is attacks of sleep. Spells of irresistable desire to sleep come over the patient in spite of his activity, previous amount of sleep, or the time of day. This element is often said to be present in all cases of narcolepsy; but other elements of the tetrad do occur without persistent sleep. Often the patients are able to stave off sleep temporarily; but the sleep is bound to come later and lasts longer. The patients fall asleep under the most unfavorable conditions, such as while driving a car, awaking in time to prevent a serious accident but sometimes not soon enough. Some patients often have a surprising ability to maneuver through thick traffic or to continue climbing a ladder even while asleep. Sleep in narcolepsy frequently resembles true sleep. The sleep may last for only a few seconds or up to several hours. The patients awaken wide awake and refreshed after only a few seconds of sleep. There may be an irregular cycle of sleep and wide awake days in some patients. Relaxation and monotony often increase the frequency of sleep attacks. Interest helps some patients stay awake. Thirty per cent of these people have fugue states during which they walk, talk and drive but later are completely amnesic of their actions.

2. Cataplexy is seen in about 64 per cent of patients with the disease. These attacks consist of the sudden loss of muscle tonus as a result of strong emotion. Following sudden laughter, anger or crying, the lids droop, the jaw sags, the knees buckle, and the patient slumps to the ground. During a cataplectic attack, the patient is able to see and can hear what is being said to him. The patient's reaction to the sympathy of people around him may prolong the attack. The attacks may result spontaneously or as a result of a sympathetic touch. Some find it impossible

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Pack recently completed his internship at the Medical College of Virginia, Richmond.

to tell jokes and learn to prevent attacks by not laughing heartily. The attacks last from a few seconds to many minutes and may occur many times each day. The onset of cataplexy is variable, sometimes preceding the narcoleptic attacks by several years or sometimes follow several years after the onset of the sleep attacks. In 15 per cent, cataplexy develops more than ten years after the increased sleepiness.

3. In about 30 per cent of the patients hypnogogic hallucinations occur. These consist of vivid and realistic visual or auditory sensations that occur during the drowsy state. Because these "dreams" occur so rapidly on becoming drowsy or so soon after falling asleep, the patient often has difficulty distinguishing them from events that really happened.

4. Sleep paralysis is seen in about 28 per cent of all patients. This is a state like cataplexy, on falling asleep and on awakening. It appears to the patient he is half awake or half asleep, able to see and hear what is happening, but completely unable to move or make a sound. The spell lasts until he is able to utter a small noise and break it or until he is touched by another person. Some patients frequently have frightening dreams associated with sleep paralysis. They may dream that someone is coming to strangle them or that a very heavy person is sitting on top of them. One physician with narcolepsy made a very extensive study of his disease. In spite of his wide knowledge of the problem and understanding of what it was, he was unable to avoid becoming very frightened by the hallucinations.

Sleep paralysis has been known to occur without either narcolepsy or cataplexy. Both sleep paralysis and hypnogogic hallucinations occur in normal people in the drifting phase between waking and sleeping. Yoss and Daly state that narcoleptics are most apt to experience them because of the duration of the interphase between waking and sleep.

Only about 14 per cent of narcoleptics experience the complete tetrad. At one time it was thought that narcolepsy was much more common in men than in women. It now appears that this distorted idea is because men with narcoleptic complaints are more likely to go to the doctor. Men at work are required to be more alert than women who do not work and remain at home. Age incidence is quite variable. It frequently starts before puberty but may not begin before the forties. The onset of symptoms is often hard to date. The family of the patient is frequently aware of the symptoms before the patient himself is. In 59 per cent of adult narcoleptics the symptoms began before 15 years of age, and the frequency of the various symptoms parallels those found in adults. The over-all incidence in the general population is about .2 or .3 per cent. Familial occurrences have been reported on occasion. In 1942, Krabbe and Magnussen reported symptoms of narcolepsy in three brothers and a sister. In one case, 13 people in four generations had symptoms of narcolepsy. It seems to be inherited as an autosomal dominant.

Diagnosis of Narcolepsy

The diagnosis of narcolepsy is not always simple. It is best made on the history of the typical sudden, uncontrollable sleep attacks in addition to other parts of the tetrad. Frequently the patient complains of being worn out and lacking pep. This easily leads to an erroneous diagnosis of hypothyroidism. In the past the basal metabolic rates were frequently found to be low. This was because patients frequently fell asleep, instead of maintaining the state of relaxed alertness required by the basal metabolic rate test. Thyroid extract doesn't relieve the symptoms of narcolepsy. About 40 per cent in some series have a basal metabolic rate below –13.

Diplopia often leads to the false diagnosis of multiple sclerosis or of myasthenia gravis. In five per cent of narcoleptics, double vision occurs at times of drowsiness, and it may occur while reading. The patients may have an exophoria that can be adequately compensated while wide awake. They have more trouble maintaining fusion when drowsy.

The symptoms in some narcoleptics resemble those of a neurotic patient. One differential point is that neurotic patients awaken feeling tired as if they hadn't slept. In contrast, narcoleptics may sleep for 10 to 15 minutes and awaken refreshed.

Narcolepsy is a paroxysmal disorder, but it is not a form of epilepsy. Narcoleptics get benefit from some stimulating drugs which make epileptic seizures worse. Narcoleptic episodes are easily interrupted by stimulation but epileptic seizures cannot be so changed. (Some so-called reflex epileptic seizures will respond to a stimulus.) Narcoleptic patients are continually verging on sleep whereas epileptic patients show relatively normal sleep-wake patterns unless over sedated.

Treatment of Narcolepsy

Treatment of narcolepsy has been quite successful since the use of stimulants such as amphetamine sulfate, metamphetamine hydrochloride, dextroamphetamine sulfate, and ephedrine sulfate. Methylphenidate hydrochloride is said to be the most effective. It is given as 60 mg to 80 mg per day in divided doses 30 to 45 minutes before meals. Insomnia can be prevented by careful scheduling of the doses. An effective combination is 15 mg on arising and reserpine in divided doses during the day. Both Ritalin and phenacemide have been found to be of benefit in cataplexy, reducing frequency and severity of the attacks in 50 per cent of the cases. Narcoleptics have a

large tolerance to alerting drugs as compared to normal patients.

Symptomatic treatment is aimed at (1) wakefulness at day time; (2) sound sleep at night; and (3) relief from cataplectic attacks.

A drug good for one person's narcolepsy is good for others. This suggests the existence of a biologically simple mechanism. There is no parallel between effect on sleep attacks and effect on cataplexy; therefore, you can postulate that the mechanisms are somewhat different for the two types of attacks.

Pathophysiology-Narcolepsy

For many years research workers have attempted to find a common lesion as a cause of narcolepsy. Many have said the lesion or lesions are in the hypothalamus. They feel that narcolepsy is a paroxysmal disturbance of the hypothalamus. Benedette feels that the endocrinologic aspects haven't received due attention. He feels narcolepsy is a brain stem, endocrine, psychosyndrome. This has been considered because of the frequently reported incidence of obesity at about the same time as the onset of narcolepsy. Adie, writing in 1926, felt that narcolepsy was an expression of disorder of the pituitary and adjacent centers. Sleep attacks like narcolepsy have been observed in obesity, pregnancy and pituitary disease. Signs of pituitary dysfunction have been observed in connection with narcolepsy—diabetes insipidus, obesity and disturbed sexual function. Luman and Davies, in 1934, reported some degree of obesity in 56 per cent of their narcoleptic patients.

Narcolepsy has also been observed to follow encephalitis lethargica as well as the result of a hypophyseal lesion. Von Economo thought that subcortical lesions were capable of influencing cortical centers and causing cataplexy, sleep or apathy. Certainly the thalamus plays an important role in integrating motor and vegetative reactions to emotion as well as in maintenance of muscle tone.

Adie in his review in 1926 emphasized Pavlov's work on internal inhibition. He believed sleep was the same as internal inhibition in the brain. He considered that sleep in narcolepsy is true sleep, and that narcolepsy and cataplexy produced by emotion are the results of cerebral inhibition. This is merely an exaggeration of normal phenomena, the inhibition starting at a focus and spreading to involve the entire brain.

In narcoleptics, structural lesions are rarely found. Cases of hydrocephalus have been reported with narcolepsy. Gando reported six cases in which there was transient loss of muscle tonus without loss of consciousness. These cases were associated with colloid cyst of the third ventricle.

Pavlov's theory of sleep as a widespread cortical inhibition has been used to explain narcolepsy. Some people explain the increased narcolepsy today as a result of the increased conditioning of the machine age that leads to more inhibition of cortical function. In Pavlov's dogs, the presentation of an intensive condition stimulus resulted in widespread inhibition, like cataplexy. In cataplexy the sudden stimulus is too much for the patient and the inhibition causes collapse. Also, in Pavlov's experiments with dogs, a prolonged repetition of a mild stimulus resulted in inhibition. Similarly the sound of rain causes sleep in narcoleptics. As the person is going to sleep, if inhibition reaches the motor centers before it reaches the sleep centers predormital sleep paralysis results. Delayed disinhibition on awaking results in postdormital sleep paralysis. No reason is given to explain the increased sensitivity of these people to inhibition.

It has been suggested by Roberts that hypoglycemia can resemble narcolepsy and that the disease may be related to carbohydrate metabolism. Many cases of narcolepsy seem to be associated with hunger aura, obesity, and hypoglycemia.

The incidence of narcolepsy greatly increased after 1918 and was a result of encephalitis in that disease.

Roberts and many others have emphasized the importance of glucose in narcolepsy. Roberts found hyperinsulinism in narcolepsy and has found a high degree of improvement in patients when put on a proper diet. After treatment he found improvement in the electroencephalograms. The patients are put on a high protein diet and told to avoid alcohol and coffee, which can increase the hypoglycemia. An important part of his work is that he feels that the usual Glucose Tolerance Tests do not show real hypoglycemia. Roberts says that Glucose Tolerance Tests done in the afternoon uncover much undiscovered hypoglycemic reaction because the same amount of glucose in the afternoon causes a larger fall in blood sugar in the afternoon than it does in the morning. Unfortunately Roberts does not explain what to do about cases of narcolepsy in which blood sugars have been drawn during typical attacks and are found to be normal.

In direct contrast to Roberts' work on hypoglycemia as a cause of narcolepsy is the work of Weltzner on the treatment of narcolepsy with hypoglycemia. He has reported treating patients with 60 units regular insulin intramuscularly every other day for three weeks. The dosage was adjusted so as to cause in the fasting state a mild sweat one and a half hours after injection. The dose was then reduced to every three days for the next two weeks. Trials with this therapy reduced narcolepsy. The number of minutes that were spent in sleep daily were reduced to about one-tenth of the original amount. This information is in direct contradiction to the work of Roberts who feels that the treatment of narcolepsy requires the prevention of hypoglycemia. Also some workers find that blood sugar levels are of no importance in narcoleptics.

Psychiatric Aspects of Narcolepsy

There has been much discussion about a psychogenic origin of narcolepsy. Many writers feel that sleep serves as a defense againt anxiety and that the symptoms of sleep appear as a strong repression of feelings unacceptable to consciousness. Vogel emphasized that it is during periods of monotony when compulsive attention is decreased that unacceptable fantasies start to creep out to consciousness. Sleep becomes very useful because "it protects the ego at such particularly dangerous moments." Kleitman has noted a pattern of strong need for independence among narcoleptics and that frequent sleep is a means of denying this need for independence.

There are two types of psychopathology reported to be associated with narcolepsy. One is schizophrenia. The other is called the paranoid state of narcolepsy. The paranoid state is only seen when hypnogogic hallucinations are a part of the narcolepsy. The paranoid state seems to evolve after years of hallucinations which the patient finds difficult to distinguish from reality. These people show much more insight into their problem than most schizophrenics. These states seem to be a result and not a cause of narcolepsy.

Electroencephalographic Aspects of Narcolepsy

There has been renewed interest in narcolepsy in recent years because of the discovery that the electroencephalogram is not entirely normal. Careful study has been made of what changes occur in the EEG during sleep, in both normal and in narcoleptic patients.

It has long been known that narcoleptics' EEGs frequently show drowsy sleep patterns even while the person is awake and does not feel sleepy. In one series, 63 per cent of narcoleptics had sleep patterns on routine examination as contrasted with only 21 per cent of epileptics and 10 per cent of neurotics, with overbreathing, drowsiness patterns appearing in 34 out of 75 narcoleptics. In spite of the EEG patterns often the patients didn't appear sleepy and denied being sleepy. Hypnogogic hallucinations and sleep paralysis are also accompanied by drowsiness patterns.

On EEG, two types of sleep can be distinguished. The first is orthodox, the lighter sleep. The second is paradoxical sleep, the deeper of the two. Paradoxical sleep is generally felt to be the sleep during which people dream. During the paradoxical sleep, a number of phenomena occur, the most carefully studied of which are the eye movements. During paradoxical sleep there are observed fine, rapid movements of the eyes. Hence, this has come to be known as rapid eye movement sleep (REMS). The eyes are fixed during orthodoxical sleep and it is known as non-rapid eye movement sleep (NREM).

Normally, there are four definite stages of change in the EEG as a person falls asleep.

1. Low voltage, fast pattern with no spindles.
2. Low voltage, background, with some spindling.
3. Large slow waves mixed with sleep spindles.
4. Large slow waves 1-2 c/sec. 100 uV.

Stage 1 is associated with REM sleep. Stages 2, 3, 4 are associated with NREM sleep. There is a cyclic occurrence of NREM and REM sleep, but stage 1 lasts for about five minutes and is not associated with REM. REM and sleep onset accounts for all stage 1 patterns, and ocular quiescence nearly always occurs with stages 2, 3, and 4. As the person falls asleep he goes through stage 1 without REM and progresses through stages 2, 3, and 4. He remains in stage 4 for about 30 minutes and then reverses to 3, then to 2, then to 1 again with REM, but later reverts back down to 4. These cycles continue through the night, and dreaming is associated with stage 1 with REM sleep. In stage 1 without REM, the patients, when asked, felt they weren't asleep. Later, in REM stage 1, the patients after awakening felt they had been asleep and dreaming. Any imagery during REM, at sleep onset, was reported as floating, drifting, and seeing flashing lights. These did not seem to be real dreams.

The EEGs of narcoleptics follow the above described patterns and cycles with the exception of the appearance of sleep onset REMS. REMS occurs during narcoleptics' daytime naps but it did not appear until after 90 minutes of sleep. Seven out of nine patients with narcolepsy showed the presence of sleep onset REM whereas none of the normal subjects did.

There are other events that accompany REM sleep. These are rapid, shallow breathing, increase of the pulse rate, twisting movements of the face and hands and penile erection through the night. Sleep paralysis and hallucinatory experiences occur in sleep onset REM. When patients are awakened from REM sleep they have frequently reported that they were dreaming. Eneuresis as well as talking and walking in sleep are not related to REM sleep; but, teeth grinding and head banging are. Schiff has shown that eneuresis is related to stage one EEG. In a series of 21 awakenings from REM sleep, 16 reported sleep paralysis, hallucinations, or dreams. Of those awakened from other sleep stages, only one reported any of the above experiences.

Some important studies on the effects of deprivation of sleep have been done in cats. Regardless of the amount of time spent sleeping during the day, cats showed a tendency to spend a constant amount of time in REM sleep. On the other hand, animals which were deprived of sleep every time they started to enter the REM phase showed a tendency to catch

up almost quantitatively on REM sleep when later allowed to sleep at will. When human patients were awakened during the night at hourly intervals, REMS became much more frequent. REMS occurred every 70 minutes instead of the normal 110 minute interval.

In other experiments on sleep deprived cats, spinal fluid taken from 30 day REM deprived cats when injected into other cats tends to increase REM sleep. This suggests a humoral factor. With REM deprivation there develops a hyperexcitable state that progresses to resemble a psychosis. An interesting observation in cats is that electroconvulsive therapy seems to compensate for REM deprivation. REM deprivation causes a drop in the convulsive threshold. This raises some interesting speculation as to why ECT is beneficial.

Some interesting studies have been done of the effects of tryptophan on the sleep of narcoleptics given this chemical 15 minutes before retiring. This produced doubling of the amount of paradoxical sleep with increased dreaming and restlessness. If the narcoleptic had fallen asleep an hour or two before recording, he would not enter paradoxical sleep immediately, even after tryptophan, as if a need had been temporarily satisfied. Tryptophan had no effect on the waking EEG.

Drugs such as dexedrine, barbiturates, and alcohol inhibit REM sleep. Withdrawal of amphetamine causes an increased proportion of REM sleep as much as twice normal.

Kansas University Medical Center Cases

A total of 41 cases have been diagnosed as narcolepsy at the Kansas University Medical Center. Of these, two were eliminated from this review because of the atypical history. The incidence of the four components of the tetrad were as follows:

1. Sleep attacks	39	(all)
2. Cataplexy	18	(46%)
3. Sleep paralysis	10	(26%)
4. Hypnogogic hallucinations	6	(15%)

Forty-six per cent had sleep attacks as the only symptom.

The age of onset ranged between 6 and 55 with an average of 20.5 years. Of the total, 64 per cent were men and 36 per cent were women. This agrees with the commonly accepted increase incidence of the disease in men.

Of the EEGs done on 23 of the patients, 13 were reported as normal. Thirteen patients were stated to be definitely psychologically abnormal. Only one was stated to be normal. Eight patients were obese while six were either underweight or poorly developed. Three patients were reported as having a family history of narcolepsy. Eight had a history of head trauma.

Glucose tolerance tests were done on 12 patients. Four were definitely diabetic. In seven of them, the blood glucose went below 80. The lowest value was 42. This is interesting in view of Roberts' ideas of the relation between narcolepsy and hypoglycemia.

Basal metabolic rates were determined in seven patients. They varied between –1 and –17. The average was –7. Radioactive iodine uptake varied between 10 and 37 per cent. Protein bound iodine in five patients varied between 4.27 and 6.3, all within normal limits. These figures agree with the previously described normal thyroid function in the presence of a low metabolic rate because patients with narcolepsy fall asleep during the process of the test. Several patients were treated with thyroid extract with little or no relief of symptoms.

Treatment was tried with all of the previously mentioned stimulating drugs; some degree of improvement was seen in all except one patient.

Summary

Narcolepsy is a disease that, in its entirety, consists of sleep attacks, cataplexy, sleep paralysis, and hypnogogic hallucinations. All four components need not be present in every case. The most constant symptom is frequent and irresistable sleep that occurs at any time during the day. The other symptoms occur with less frequency, but are equally as disabling and distressing.

A number of etiologies have been proposed for narcolepsy. Traditionally the site of the lesion has been placed in the hypothalamus, at least in theory. This has been because of the concurrent findings of obesity, diabetes insipidus and other endocrine abnormalities. More recently emphasis has been placed on the importance of abnormal glucose metabolism and also on the psychiatric factors.

Treatment has been very successful in relieving the symptoms. Among the most commonly used drugs are various forms of amphetamine and Ritalin.

The most recent discoveries concerning narcolepsy have been on the abnormal sleep cycles in people with that disease. Electroencephalography reveals two types of sleep. Narcoleptics are found to enter deep sleep much sooner after falling asleep than normal people do. This rapid rate of progression to deep sleep is felt to be the abnormality in narcolepsy.

Thirty-nine cases diagnosed as narcolepsy at the University of Kansas Medical Center have been reviewed. The number of males is increased over the number of females. The normal thyroid function studies and the abnormal glucose tolerance tests frequently found are in agreement with the current theories of narcolepsy.

Editor's Note: References may be obtained by writing the Journal, 315 West 4th Street, Topeka, Kansas 66603.



CP + T

Newsletter

Treatment of Iron Poisoning

Incidence

THE INCIDENCE of acute iron poisoning has increased over the past two decades to the point where it is now one of the three drugs most frequently encountered in both fatal and nonfatal poisoning in children in this country. In Britain where the use of iron compounds in the treatment of anemia has been comparatively aggressive, iron is exceeded only by the barbiturates as a toxic cause of death. Although the potential toxicity of iron has been documented for over 100 years, iron and its compounds were widely regarded as relatively harmless prior to the reports of Forbes[1] and others beginning about 1947. Most parents and many physicians are not fully aware of the seriousness of iron poisoning in young children in spite of numerous articles appearing in both the popular press and medical literature. There are over 100 iron-containing preparations in the current *Physicians Desk Reference* and a variety of over-the-counter preparations with a significant iron content. Many of these are candy-coated and brightly colored which increases their attractiveness to children. Such preparations are often regarded as pseudo-foods and are, therefore, kept on the dining room table or the kitchen counter rather than in the medicine cabinet. Acute iron poisoning is rare in adults, so the most effective means of reducing the needless tragedies resulting from iron poisoning is prevention rather than treatment. Proper labelling and educational measures directed to physicians and their patients, pharmacists and their customers, and mothers and their children are necessary to counteract the three factors of wide distribution; attractive formulation and accessibility which, together with the natural curiosity of children, contribute to the current serious problem. Physicians prescribing iron should warn their patients of the consequences of poisoning, the greater susceptibility of children, and should avoid the use of sugar-coated or colored iron tablets. Where therapeutically suitable, consideration should also be given to the use of iron-chelate complexes (e.g., ferric choline citrate or ferroglycine sulfate) rather than the more toxic ferrous sulfate or ferrous gluconate preparations.

Like many other metals, iron is also capable of producing chronic poisoning (siderosis) as a result of dietary overload (Bantu siderosis, Kashin-Beck disease), medicinal overload (including transfusion overload as well as through oral and parenteral medication), and various types of iron-storage disease (hemochromotosis). The question of whether increased iron storage without tissue damage (hemosiderosis) can occur on a chronic basis requires further investigation. Occupational exposure due to the inhalation of iron containing dusts (pneumoconiosis) may also occur, but all of these causes of chronic iron poisoning contribute little to the vital statistics for fatal accidental iron poisoning in comparison to acute poisoning in children.

Symptoms

The symptoms of iron poisoning are due to both local and systemic effects which may be influenced by factors such as the chemical and physical form of the metal, the dose, route and duration of exposure, and by the environmental and exposure situation. In general, the ferrous salts are more toxic than the ferric salts whereas the so-called reduced iron (elemental

Clinical Pharmacology Study Unit, and Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

iron in a powder form) is, by comparison, virtually nontoxic. As little as 1 gm of ferrous sulfate may be lethal, but recovery has been reported following the ingestion of 15-20 gm of this agent. Both the ferrous and ferric forms of iron produce necrosis of the gastrointestinal tract with subsequent hemorrhage. Liquid preparations and standard tablets affect the stomach and duodenum more than enteric-coated tablets which produce damage lower in the gastrointestinal tract. Children who chew iron tablets tend to exhibit more proximal lesions. The initial symptoms of acute iron poisoning (vomiting, abdominal pain, diarrhea) usually occur between 30 minutes and two hours after ingestion and are thought to be due to the local irritant effects on the gastrointestional tract. Gross blood is often present in the vomitus and may be found in the stools of patients exhibiting diarrhea. Drowsiness or lethargy frequently develops during the early period after exposure which is referred to as the first stage of iron poisoning. During this period the patient may lapse into coma which may be preceded or accompanied by generalized convulsions. About 20 per cent of severely poisoned children die within four to six hours after exposure, often in shock. If death does not occur, there is usually a period of apparent improvement lasting 8 to 24 hours during which the initial symptoms subside. Although recovery may occur at this point, most patients progress into the second stage of iron poisoning which is characterized by progressive cardiovascular collapse, the development of metabolic acidosis with its respiratory consequences, convulsions, and frequently by manifestations of liver damage. The second stage of iron poisoning is thought to be due to a combination of gastrointestinal factors (hemorrhage and loss of extracellular fluid into the GI tract) and the systemic effects of the absorbed iron. However, the severity of the recurrent shock which occurs during this stage is greater than would be expected from blood loss alone and, it has been suggested, that ferratin from mucosal cells may be acting as a vasodepressor.[2] This type of shock and also the metabolic acidosis produced by iron poisoning are often extremely refractory to the usual treatment and, in addition, the elevated serum iron interferes with the normal clotting mechanisms. The third stage of iron poisoning, consisting of gastric scarring and pyloric obstruction, may occur several weeks or months after exposure and there may also be hepatic cirrhosis as a late sequelae.

Diagnosis

The diagnosis of acute iron poisoning in a young child is complicated by the frequently unreliable history and by the diphasic nature of the symptoms. However, the possibility of iron poisoning should be considered in any child that is vomiting, has bloody diarrhea and is lethargic, comatose, or even in shock when first seen. Undissolved iron tablets in the vomitus or gavage fluid can frequently be identified. Serum iron levels are usually elevated and the studies of Westlin[3] suggest that such determinations are of prognostic value even though they may be quite variable. Using dogs and rabbits, Reissmann and his associates[4] found that the serum iron levels were generally correlated with both survival time (inversely) and with severity of symptoms, and they were among the first to demonstrate[5] that the lethal effect of iron poisoning is due primarily to absorbed iron (systemic) rather than gastric or intestinal necrosis (local).

Other abnormal laboratory findings associated with acute iron poisoning include an initial leukocytosis and hemoconcentration, a decreased carbon dioxide combining capacity due to the metabolic acidosis and the associated increased levels of lactic and citric acids, hyperbilirubinemia, and other evidences of derranged liver function. Although the urinary excretion of iron is negligible even in the presence of high serum iron levels, there is a change in the urine color after the administration of deferoxamine (Desferal, CIBA) which provides a useful therapeutic and, in some cases, a diagnostic guide. Greengard[6] has shown that children who have ingested iron beyond the iron-binding capacity of their serum will excrete sufficient amounts of ferrioxamine (the iron-deferoxamine complex) to color their urine a striking red-brown *(vin rosé)*.

Treatment

The traditional treatment of acute iron poisoning has involved measures to minimize further absorption of the metal (use of activated charcoal or other agents to delay absorption, removal of the iron from the gastrointestinal tract by emesis or gavage and through the use of cathartics or rectal lavage) and a variety of symptomatic procedures to combat the physiologic effects of the absorbed iron (correction of fluid, electrolyte and acid-base disturbances, antagonism of peripheral vascular collapse and the control of convulsions). With the introduction of chelating agents into clinical practice, several of these agents have been used in the treatment of iron poisoning in the hope that they would convert the iron to a less toxic form, remove iron from intracellular locations, reduce the serum iron concentration, and increase the excretion of iron from the body. Prior to the introduction of the chelators, the only effective method for reducing the level of circulating iron was through blood loss or by restricting the dietary intake of iron. Since EDTA (ethylenediaminetetraacetic acid, Edathamil) is capable of chelating iron (thereby modifying the usual chemical and physical attributes of the metal), it was one of the first of such agents to

be included in the therapeutic regimen for acute iron intoxication. The results were disappointing, although the use of EDTA orally was shown to decrease the gastrointestinal absorption of iron and its use intravenously appeared to enhance the renal elimination of iron. Since DTPA is somewhat more effective as a chelating agent for iron, it was also used; however, neither of these agents significantly reduced the mortality associated with iron poisoning in children. The most effective of the newer chelating agents that have been investigated clinically in iron poisoning is deferoxamine (Desferal, CIBA) which is a chelating agent obtained from *Streptomyces pilosus*. Deferoxamine lowers the serum iron concentration more rapidly, causes greater urinary excretion of iron, and combines more firmly with iron than does either EDTA or DPTA. Since it also has a greater specificity for iron than other chelating agents, it does not increase the excretion of trace metals such as copper, magnesium, and zinc; and it has virtually no affinity for calcium as do other chelators. Although deferoxamine is now considered by many Poison Control Centers to be the drug of choice for the therapy of acute iron poisoning, its use does not eliminate the importance of the usual emergency procedures (gavage, fluids, oxygen, etc.). Large doses of deferoxamine or the complex, ferrioxamine, can themselves be toxic when given orally (gastrointestinal irritation) or parenterally (hypotension, tachycardia, erythema, and urticaria). In addition, lens opacity has been produced in animals by the chronic administration of deferoxamine, but this apparently does not occur with its acute use. The recommendations of Robertson[2] for the treatment of acute iron poisoning in children are as follows:

1. If the number of tablets ingested is five or more (or unknown), the child should be immediately taken to the nearest emergency facility. Syrup of ipecac can be given if immediately available and the child has not already vomited. Gastric aspiration and lavage using 5 per cent $NaHCO_3$ should be carried out promptly using a tube of sufficient size to permit passage of any undissolved tablets. Deferoxamine is then given via the lavage tube and permitted to remain in the stomach if the lavage fluid is reasonably clear. If the fluid is bloody, approximately 100 ml of 5 per cent $NaHCO_3$ is left in the stomach prior to the administration of deferoxamine since this enhances the conversion of the iron to the ferrous carbonate form which impedes absorption and increases the affinity of deferoxamine for iron. The oral deferoxamine treatment is repeated after four hours using half of the original dose (2-10 gm in 25 ml of lavage fluid) and again at 8 to 12 hours if indicated.

2. An intravenous drip should be started on arrival if the patient is in shock and plasma or dextran can be given until adequately crossmatched whole blood becomes available. An initial administration of 150-200 ml of Ringer's lactate is preferred by some Poison Control Centers as the first step in the treatment of shock. Levarterenol or corticosteroids do not appear to be particularly effective in such patients, although isoproterenol is recommended by Greengard.[6] Deferoxamine can be given intravenously (40 mg/kg over a 4-hour period with no more than 15 mg/kg in any single hour); but, if the patient is not in shock, it should be given intramuscularly (20 mg/kg) to avoid its possible hypotensive effects. The deferoxamine treatment can be repeated at intervals of 4 to 12 hours depending on the clinical picture and response to therapy. With severe intoxication, therapy may have to be continued for two to three days.

3. DTPA (diethylene-triamine-penta-acetic-acid) can be added to the intravenous drip and given by slow infusion (20 mg/kg in a 4-hour period), but repeated treatment with this agent may lead to hypocalcemia.

4. Developing metabolic acidosis requires an individual approach based on results of periodic determinations of serum pH and electrolytes and urinary pH. The collection of urine samples is also helpful in detecting impending anuria.

5. With significant gastrointestinal bleeding, adequate blood replacement is indicated and it may be necessary to use exogenous fibrinogen to control hemorrhage.

6. Analeptic agents are not used despite the fact that these children are lethargic or even comatose. Oxygen may prove helpful, but the possible value of hyperbaric oxygen in iron poisoning has not been adequately investigated. Similiarly, the possible benefits of exchange transfusion and also peritoneal dialysis and hemodialysis in the treatment of acute iron poisoning have not been clearly established. Serum iron itself is not dialyzable, but the ferrioxamine complex is apparently able to cross a dialysis membrane.

Deferoxamine and other chelators have also been used in the treatment of chronic iron poisoning, such as occurs in transfusion hemochromotosis, in the hope that they would prevent the development of fibrosis, cirrhosis, and diabetes in such patients. In anemic patients receiving blood transfusions, where phlebotomy is not feasible, deferoxamine appears to be better tolerated than DTPA or EDDHA. However, its advantages in the treatment of idiopathic hemochromatosis have not been clinically established.

Until very recently, deferoxamine was limited to investigational use under the supervision of the Food and Drug Administration. Now that this agent is more readily obtainable, it is likely that its effect on the mortality rate for acute iron poisoning will be

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Law-Medicine Comment

The Beginning of Life

M. MARTIN HALLEY, M.D., J.D., *and*
WILLIAM F. HARVEY, J.D., LL.M., *Topeka*

Medical and legal criteria for the beginning of human life are reviewed. Medicine recognizes conception, and emphasizes viability. The law uses a multiphasic approach, and may hold that "life" begins at conception, at quickening, at viability, at live birth, or as determined by statute.

MEDICAL AND LEGAL CONCEPTS concerning the beginning of human existence manifest dissimilarities and nonuniformity, much as the corresponding concepts of death discussed in a previous issue.[1] Medical authorities recognize life as beginning at conception, but appear to contemplate a separate type of human personality as arising at the time the fetus attains the capacity for independent existence, or viability, a point in gestation which is not precisely ascertainable. Legal authorities, on the other hand, consider the beginning of life, as well as the moment of death, as subordinate facts, which permit the determination of other important legal relationships. Thus the legal personality may arise at various times, ranging from the moment of conception to the moment of live birth, as determined not only by the particular case law and statutes of a jurisdiction, but also by the different approaches of the criminal law, the law of property, or the law of torts.

Medical Definitions

The time life commences has been the subject of speculation since ancient times when the fetus was thought not to live until some time after conception. Hippocrates placed the time of fetal life at 30 days after conception for the male and 42 days for the female. Aristotle placed it at about 40 and 90 days respectively. Galen later settled on 40 days for both sexes, a time also then accepted by the civil law.[2]

Medicine today places special emphasis on viability, which is generally attained in the 28th week of gestation, but may occur at an earlier time. Definitional variations exist, however, from clinic to clinic, and revisions of the time of viability may also occur with the development of new techniques for sustaining the fetus. Termination of pregnancy prior to the 21st week has been termed abortion (conceptus "nonviable"), whereas termination thereafter, through 35 weeks is premature labor (conceptus "previable" or "viable").[3]

Definitions of life in current medical reference material do not refer to the beginning of life, but describe the general living state in nonspecific terminology: ". . . the sum total of the vital processes by which the physical integrity of the body is maintained."[4] "The energy which is essential to existence, or the force which endows organized beings with power to exercise such functions as growth, metabolism, reproduction, and so on."[5] "The aggregate of vital phenomena; a certain peculiar stimulated condition of organized matter; that obscure principle whereby organized beings are peculiarly endowed with certain powers and functions not associated with inorganic matter."[6]

Legal Definitions

The *Dictionary of Terms and Phrases* (1879) states that life, for some purposes, is recognized as commencing from conception, particularly if beneficial interests of the child are involved, such as the capacity to inherit; for others, life dates from quickening, which is necessary to constitute abortion an offense, except as changed by statutes; for a third class of purposes, the child must be born able to exist independently of the mother before its life is deemed to have commenced. This multiphasic approach to the beginning of the legal personality persists today, so that "life" in law may be recognized as beginning at conception, at quickening, at viability, at live birth, or at a time determined by legislative enactment.

"Life" at conception. The unborn child has traditionally been recognized from the moment of conception for property rights and rights of inheritance, provided that subsequent live birth occurred, by means of the fiction of regarding the child as born whenever this would be to his advantage. The criminal law has recognized the unborn child at conception, by providing varying degrees of protection. An increasing number of courts, in personal injury actions, also consider the child at conception as a separate being to whom a duty of care is owed. Thus it has been said

that there is no sound reason for drawing a line at the precise moment of fetal development when the child attains the capability of an independent existence, and that the only inquiry should be whether the damage sustained is traceable to the wrongful act of another. No court, however, has yet sought to go beyond the point of conception to allow a child to recover for an injury to the ovum or sperm.

"Life" at quickening. Perceptible fetal movements, which appear at the end of the fourth month of pregnancy, have marked the beginning of the legal personality for some purposes. In England, the killing of the fetus after quickening was said to be "a great misdemeanor" at the time when unlawful abortion before quickening had not yet become a crime by statute. The time of quickening may also be of importance in civil actions, and it has been held that a cause of action arose if the child was "quick" at the time of an injury, even if not yet "viable."

The concept of quickening is retained in present Kansas statutes relating to abortion, which treat the unlawful and willful killing of an unborn *quick* child, by an act upon the mother, as manslaughter, a felony, although prior to quickening the procuring of an abortion or miscarriage is a misdemeanor, for which a lesser punishment is provided. [Manslaughter results if the death of the mother is caused by an illegal abortion.][7]

"Life" at viability. The majority of courts, in personal injury actions, consider the fetus as a person in being at this point of prenatal maturity, and permit the child to maintain an action for the consequences of prenatal injuries occurring after viability, provided that he is born alive. If he dies of such injuries after birth, an action will lie for his wrongful death. If he is stillborn as a result of the injury, however, a special problem is presented, and a number of courts have refused to permit the action, although the majority, including Kansas, have allowed it.

Viability may also be significant in the criminal law, although the concept of live birth persists, as discussed below. In this regard, the footnotes in a New York decision (1949) stated, ". . . It should be equally held that a viable child in the process of being born is a human within the meaning of the homicide statutes, whether or not the process has been fully completed. It should at least be considered a human being where it is a living baby and where in the natural course of events a birth which is already started would naturally be successfully completed."

"Life" at live birth. The unborn child, although recognized at earlier stages of development, is nevertheless dependent upon live birth for final establishment of property rights, causes of action for personal injury other than wrongful death, or the complete protection of the criminal law. Thus the law of homicide may only recognize the infant as a human being capable of being murdered after live birth. This means complete extrusion from the mother, and the subsequent manifestation of some sign of life, such as cardiac activity, respiration, crying, or movement of the limbs. Evidence of life may also be obtained by postmortem findings such as expansion of the lungs, air in the stomach or intestines, contents of the intestine other than air, changes in hemoglobin, the condition of the umbilical cord, or the appearance of the skin. The New York decision previously mentioned reversed a conviction for murder, on the ground that proof outside the confession had not established "that the child was born alive in the legal sense, that it had been wholly expelled from its mother's body and possessed or was capable of an existence by means of a circulation independent of her own." [Medical experts testified that death had been caused by traumatic asphyxia, and that the lungs were expanded.]

"Life" by statute. The beginning of the legal personality is affected by many legislative enactments, which may adopt or modify the criteria previously discussed. For example, the criminal law, in protecting the unborn infant through abortion laws, utilizes the concept of quickening in some jurisdictions, or may make reference to a "woman who is pregnant" or "with child." The child during birth may be recognized as a living human being, by making the unlawful killing of the child at this point a felony, as was done in England by the "Infant Life Preservation Act" (1929). Again, the unborn child may be recognized at conception by statutory suspension of the execution of the death penalty during pregnancy, as is the law in Kansas.[8]

Statutes may require judicial interpretation of legislative intent. In this regard an unborn infant of four and one-half months gestation was held not to be a "minor person," and another court held that an unborn infant at nine and one-half months was not a "person," could not have "next of kin," and was not a legal personality separate and distinct from the mother.

Additional Kansas statutes recognize "life" at conception in the following situations: The intestate succession law defines "children" as including the posthumous child; a guardian may be appointed for an unborn child for specified purposes; the afterborn children of an employee or workman who dies from certain occupational diseases are granted compensation under Workmen's Compensation Law.[9]

Another type of statutory recognition of the unborn infant is illustrated by the "Uniform Vital Statistics Act" in Kansas, which defines "live birth" as the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy, which, after such expulsion or extraction, breathes or shows any other evidence of

life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. "Stillbirth" is defined as any complete expulsion or extraction which is in excess of 350 grams, irrespective of the duration of the pregnancy, which is not a live birth as defined in this act.[10]

Kansas Decisions and Statutes

The following Kansas Supreme Court decisions illustrate legal criteria for the beginning of life. *"Life" at conception* is the rule in property law, including inheritance by will or intestate succession, and for problems concerning paternity or the legitimacy of children. *"Life" at viability* has been adopted for the law of torts, in a wrongful death action which also excluded the requirement of live birth in this field. The criteria of *live birth, quickness,* and *statute* have been included in the discussion above.

In re Julian's Estate (1959)[11] recognizes "life" at conception in an intestate succession controversy 31 years after a divorce. The husband and wife had married on November 1, 1927, lived together 21 days, and were divorced on March 29, 1928. A child was born in July 1928. The former husband died in 1957, and the dispute between the child and more distant relatives arose over who would be the legal heirs. In holding for the child, the court stated that the marriage of the mother 255 days before the child's birth was within the recognized period of gestation, and that additionally a child born after the parents have been divorced will be presumed legitimate if conception occurred before the divorce decree was granted. In *Jensen v. Reeble,*[12] in declaring a child legitimate, the court accepted a point of conception 295 days before birth, and quoted authorities for a period of gestation as long as 344 days. In *State ex rel Beason v. Law*[13] (1914), in a paternity proceeding, a 217 day gestation period was held not an impossibility, for a child whose weight and size corresponded to the ordinary period of gestation (280 days), but who exhibited "some evidence of prematurity."

In re Walton's Estate (1958)[14] illustrates the legal recognition of "life" at conception in inheritance by will. A husband and wife died simultaneously in an airplane accident leaving their estates to designated nieces and nephews. A nephew was born 270 days after the accident, and the court held that he was in being at the time of the deaths for the purpose of sharing in the estates.

Hale v. Manion (1962)[15] involved a wrongful death action in which the court permitted the parents of a viable unborn child to maintain an action after the child was stillborn as a result of a negligent act. As a result, *"life" at viability* has apparently been adopted for tort law in Kansas. In the case, the pregnant plaintiff was injured in a taxicab, and seven days after the collision delivered a perfectly formed child which did not survive birth. The court did not directly consider the problems of medical proof of viability or the causal relationship between the injury and the stillbirth. [The wrongful death statute provides for the bringing of an action by heirs of the deceased, if the death of a person is caused by the wrongful act or omission of another, and if the former might have maintained the action had he lived.][16]

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CP + T Newsletter

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determined more precisely. However, it is clear from the studies already reported that the often quoted mortality figure of 50 per cent for iron poisoning will need to be substantially reduced and that, with deferoxamine, we have moved much closer to the goal of a highly specific and effective antidote for this type of metal poisoning.

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Cancer Page

Patient History

The patient was a 75-year-old nulliparous white female. She sought medical advice because of vaginal bleeding. A D&C was performed at which time pyometra was noted and the tissue obtained was reported as consistent with pyometra. Twenty-two months later, she again noted vaginal bleeding. A laparotomy was performed and a biopsy confirmed the diagnosis of inoperable, undifferentiated, adenocarcinoma of the endometrium. The patient received palliative cobalt therapy.

Comment

With the discovery of pyometra, drainage should have been established and curettage deferred until resolution was obtained. Any manipulation in the presence of pyometra, other than that necessary to establish drainage, carries with it a high mortality rate, and is contraindicated. In view of the well known association of pyometra and uterine malignancy, the negative pathology report on the specimen obtained should have inspired a second D&C, preferably coupled with a conization of the cervix.

Conclusion

Contraindicated surgery.

Probable misdiagnosis.

—Prepared by the Committee for Control of Cancer

The President's Message

The delivery of medical services and the costs of health care are being evaluated by a Senate sub-committee and by conferences sponsored by the Department of Health, Education and Welfare. The testimony has been impressive. A detectable undercurrent of these sessions is that our present health plans have notable deficiencies. I sincerely hope these appraisals yield information which will help physicians give better care and solace to their individual patients.

There is a group of "medical consumers" and a group of "medical vendors" as they are called in governmental medical programs who have not had a real spokesman in these surveys and I write about them because I know them.

The Kansas farmer, the self-employed grocer and the auto mechanic with his own shop who fall under governmental health programs are representative of this group of "consumers." They are friends of mine and only incidentally patients. They have weathered the years with a dignity based on independent self-reliance. They are not articulate. They have worked hard, yet they have scant savings, but they aren't in the poverty classification. They have no group leader. They don't demonstrate. In sampling their reactions to our governmental medical programs, there has been a consistent basic theme in their beliefs. They object to the impending erosion of their close alliance with the physician of their choice, a relationship nurtured over the years by a series of medical and personal problems which they had solved or accepted as a team of two—the patient and the physician. They lack confidence in the wisdom of the government in the management of their affairs medically or financially. They envision the wasteful administrative processes involved in the current medical programs. They fear they will be denied the competitive marketplace where a patient selects his physician and his hospital not only on the basis of their scientific reputation but on their willingness to strive to please him. They have already noticed an indifference in the attitude of many hospital employees in their responsiveness to patients' requests. They are apprehensive that further restrictive measures may destroy the incentive of the physician to serve them in his traditional manner. The comparison is made between private medical care and the present governmental medical trends with the telephone system and the post office. The private enterprise of the telephone company with its low, relatively unchanging rates, its excellent service and the "voice that smiles," stands in contrast to the federally operated postal service with its constantly rising rates and decreasing service.



The small town physician, now labeled a "medical vendor" under the governmental programs, is bewildered. He entered medical school to learn a science and an *art*. He planned to follow a calling, to ease suffering and to offer comfort to his patients. He now sees the threat of governmental restrictions hampering his professional judgment. He has read of proposed legislation which would require him to prescribe generic drugs which are not "therapeutic equivalents"; that is, they are not as effective as the drugs he now prescribes. He wonders if this same authority will in time tell him to use a cheaper and less efficient suture material. He wonders if being a "vendor" will dilute or sever the patient-physician relationship he has cherished during his years in practice.

In the search for better patient care I respectfully propose that the dignity of our patients, the ideals of the physician, and the close patient-physician relationship are intangible virtues. They were not legislated into existence—let us not further legislate or regulate them out of our lives!

J. L. Morgan

President



Editorial
COMMENT

Medical Ethics and Reasonable Fees

GEORGE W. PETZNICK, M.D.*

(The following article was published in the March 1968 issue of *The Ohio State Medical Journal*. We wish to thank the author, George W. Petznick, M.D., who is a member of the AMA Judicial Council, and *The Ohio State Medical Journal* for granting us permission to republish it here.—Editor)

Ethics is a word that does not excite the interest of many people and, along with morality, is at once a broad and loose term in this free-wheeling society. However—

Medical ethics definitely provides that the charging of excessive fees is unethical!

If you are not concerned you should be as are your representatives in the House of Delegates of the American Medical Association who, in a series of far-reaching actions, voted proposals designed to come to grips with the escalating costs of medical care.

Why?

Because your AMA leaders realize that rising medical costs have recently become an issue of national importance—not only to politicians, labor leaders, and insurance carriers—but to the average American citizen who is paying the bills.

Along with the problems of increased costs of medical care are attempts to "impose standards of medical care on a national level."

For those of you who have missed the impact of that statement, let me suggest that a physician in court could have his medical care measured by the national standard of that care.

The Ethics of It

You may ask, What has this to do with medical ethics?

Ethics is difficult to define in concise fundamentals, but this should not be distressing because the age in which we live is proof enough that there can be no simple answers to complex questions.

Ethics is a continuing search for principles by which "choice" can be guided. Choice is the important word.

It is a system of values based on truth and good.

In nearly every act of our respective lives, we are confronted with choices involving two or more alternatives. Many choices we must make are absurdly simple and some are astonishingly difficult.

If there is no choice to be made, then there is no problem. If there is only one course possible, the uncertainty of choice is removed and we follow that course.

If, by law, the government enacts standards of medical care and a fixed fee or salary for that care, you have but one choice—not yours but the government's.

John B. Archer, M.D., in a discussion of morality in medicine wrote that, in choosing, we exercise as many as four types of judgments.

The first and most important is moral judgment that distinguishes between right and wrong, good or bad.

Aesthetic judgment classifies objects and acts as beautiful or ugly.

Prudential judgment should tell us the difference between that which is wise and that which is foolish.

Logical judgment deals with the validity or fallacy

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* Dr. Petznick, a Cleveland practitioner, is a member of the American Medical Association Judicial Council, a Past President of the Ohio State Medical Association, and a Delegate to the AMA. This article is the text of a lecture prepared for delivery before the Conference of County Medical Society Officers, Columbus, February 25, 1968.

of those things by which we would prove our positions.

Our judgment is never better than our information. To make informed judgments, we must possess the necessary knowledge and the ability to use it.

This we call wisdom!

Judicial Application

Is it wisdom to say that a medical society review committee must use its best professional judgment in determining the reasonableness of a fee? Emphatically the answer is "yes" because, if medicine is expected to succeed in achieving a usual, customary, and reasonable fee payment program involving all third parties, private, commercial, public, or government, then medicine must expect to assume the responsibility to assure the patient that the fee is usual, customary, and reasonable.

If medicine declines this responsibility or refuses to carry it out, the only alternative is for a lay third party to dictate fees. The privilege of the usual, customary, and reasonable fee for physicians carries with it the equal responsibility the profession must shoulder in determining reasonableness.

If medicine is to continue to be master of its own house, then it must accept and carry out this responsibility.

The fact that a physician consistently charges and collects an excessive fee for a particular procedure does not mean that this fee meets the usual, customary, and reasonable criteria.

For example, a physican cannot ethically and logically argue that the fact that he charges all patients $500 for an appendectomy or $1000 for a laminectomy means that this is a reasonable fee.

Let me cite an actual bill from an Ohio allergist—

9-1-67	Consultation	$125.00
9-1-67	Allergy Tests	$125.00
9-3-67	Allergy Tests	$125.00
9-5-67	Allergy Tests	$125.00
Total		$500.00

Let me quote from Sylvia Porter's nationally syndicated article of December 12, 1967. "One New York surgeon charged an elderly patient $175 to remove a cataract before medicare. But the same surgeon's charge for a similar operation on the same patient after medicare became effective was $500. Because of the deductibles and because the reasonable and customary fee allowed by the government for this operation was only a fraction of $500, this patient now had to pay $400 for the post-medicare operation, instead of the $175 he paid pre-medicare.

A Look From the Inside

"The excesses of a greedy fringe are openly and widely admitted. If the U. S. medical profession fails to curb them on its own, it will only be inviting further government controls on medical practice and fees, a step the profession wants least."

Doctors reportedly have increased their fees because they were told or knew that insurance would quite likely pay the bill. This is strange reasoning when it is realized that the physician raises his fee for services to a man who has been so concerned about paying his doctor when necessary that he has been saving his money for that purpose.

It isn't just a case of considering the ability of the patient to pay. Rather, consideration should be given to the fact that the individual has actually saved his money for this purpose, thus lessening to some extent the doctor's financial problem.

Providers of professional services are not only qualified but they are sanctioned in their endeavors by their fellow men. Logically, these professional people must impose additional limitations upon themselves with respect to this privilege and responsibility.

We call these additional and voluntarily assumed limitations a system of professional ethics.

The Principles of Medical Ethics of the *AMA* in the fewest possible words exhorts the physician to dedication, honesty, competence, responsibility, moral attainment, and good citizenship.

There is no reference, direct or indirect, to professional freedom. It is not a law, yet the whole of the document is a declaration of moral freedom, but only freedom to choose the right.

We are dealing with guides, admonitions, injunctions and moral yardsticks.

It has been observed that the greatest strength of any profession is within itself because it alone has the responsibility of its perpetuation, it alone has the responsibility for the extension of its knowledge, and it alone for the scope of its services.

The nature and characteristics of medicine being what they are, it is obvious that the profession contains the seeds of its own destruction.

If we nurture or even condone the incompetent, the morally deficient, or the willful violator, then we are helping these seeds to germinate.

Just as it is right and ethical for a physician to expect to receive his usual, customary, and reasonable fee for professional services, it is equally right and ethical, as stated by the AMA House of Delegates, that his fee may be reviewed only by a duly constituted county medical society committee of the physician's peers.

Most physicians charge reasonable fees.

Reflections on the Profession

County medical society review committees, ethics committees, grievance committees, or county medical societies as a whole, cannot continue to tolerate excessive charges by a few physicians, for these excesses cast improper, unwanted, and unethical reflections on the entire profession.

If medicine is to continue to be master of its own house, then it must accept and carry out this responsibility. If medicine fails, the course will lead the profession to prevailing fees, then to fixed fees, then to salaried employees of the government.

Is the profession worth so little to physicians that they will not effectively act against a very small minority to protect the character, reputation, freedom, and independence of the vast majority of doctors?

Medicine must wake up to the fact that there are many socio-political-government interests that are very anxious to control medicine and they know the easiest way to do this is to control fees.

Medical societies must be more aggressive and more effective in acting against excessive charges. The society must judge the act itself and not the stature or influence of the physician responsible for the act.

Finally, the *Principles of Medical Ethics* is the greatest professional code ever written, but it is not worth a nickel if the profession does not actively and effectively enforce the code.

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

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Wichita, Kansas 67208

Elected and Advisory Committees—1968-69

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Book REVIEWS

PATHOLOGIC PHYSIOLOGY: MECHANISMS OF DISEASE, by William A. Sodeman and William A. Sodeman, Jr. (Fourth Edition), W. B. Saunders Company, Philadelphia-London, 1967. 1051 pages. $19.00.

The fourth edition of *Pathologic Physiology: Mechanisms of Disease* features for the first time the joint editorship of W. A. Sodeman and W. A. Sodeman, Jr. The book is divided into 12 parts and consists of 31 chapters, reviewed or rewritten by the same contributors as the third edition; two new chapters, one on Subcellular Biology, and the other on Autoimmune Disease; a new section on Laser radiation; and an expanded section on Space Medicine.

Chapter two, written by William A. Sodeman, Jr., is dedicated to "Subcellular Biology." It deals with the mechanisms of molecular diseases, especially those of congenital origin, commonly spoken of as inborn errors of metabolism. Chapter three on "Autoimmune Disease" included in this edition, is quite timely with the current intense interest in autoimmune diseases and the immunologic implications of organ transplants. The author of this chapter, Sir F. M. Burnet (Nobel Prize of Medicine 1960) discusses the immunologic tolerance by his own "Clonal Selection Theory" and the hypothesis of "The Forbidden Clone." He explains the role of the thymus, and reticulo-endothelial system in the pathogenesis of this group of diseases, and in light of this knowledge, formulates the basis for their treatment. In chapter fourteen, William B. Bean introduces a section on the nature, effects and applications of Laser radiation; in the same chapter, under the headings: "Space Medicine" and "Experiences from Space Flights" he presents the human reactions to acceleration weightlessness, re-entry into the earth's atmosphere; the dangers of physical inactivity, and confinement in the space capsule; and the nature of after-effects of space flights.

The book is handsomely bound and printed in pages of two columns, thus facilitating easy reading. There are adequate tables, photographs, references and a detailed subject index. Its size, however, becomes cumbersome for a book that promises widespread usage; undoubtedly the readers would have preferred a two-volume textbook.

The fourth edition of Sodeman's Physiopathology retains the outstanding didactic quality of previous editions. Its style and its up-dated content primarily applies to the medical student, but its wealth of information is also worth consulting by physicians and paramedical professionals.—*A.H.*

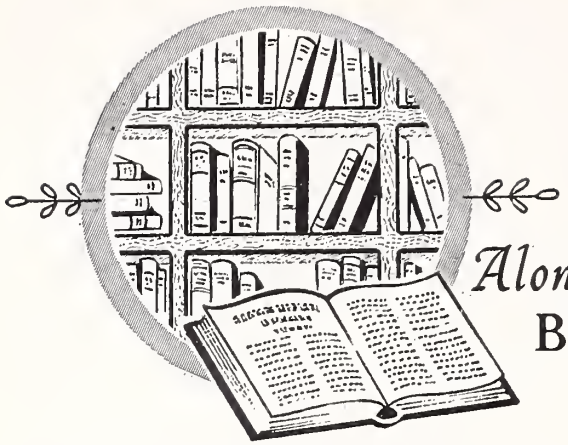
PREVENTION OF HIGHWAY INJURY. Published by the Highway Safety Research Institute, University of Michigan, Ann Arbor, 1967. $6.50.

This very interesting book, detailing the results of exceedingly complex and thorough tests that apparently have or have had marked influence on highway accidents resulting in property destruction as well as human lives is, in my opinion, informative as to causative factors. However, it leaves much to be desired in the way of recommendations for improving the situation.

I believe the title of the book is misleading. One would expect to find somewhere suggestions for prevention.—*J.M.M.*

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Along The BOOKSHELF

Clendening Medical Library

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Slobody, Lawrence Boris. Survey of clinical pediatrics. 5th ed. New York, Blakiston Division, McGraw-Hill, 1968.

Southwick, Arthur F. The doctor, the hospital and the patient in England: rights and responsibilities under National Health Service. Ann Arbor, Bureau of Business Research, Graduate School of Business Administration, University of Michigan, 1967.

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Stern, Edith (Mendel). Mental illness; a guide for the family. 5th ed. New York, Harper & Row, 1968.

Stevens, Kingsley M. The ecology and etiology of human disease. Springfield, Ill., C. C Thomas, 1967.

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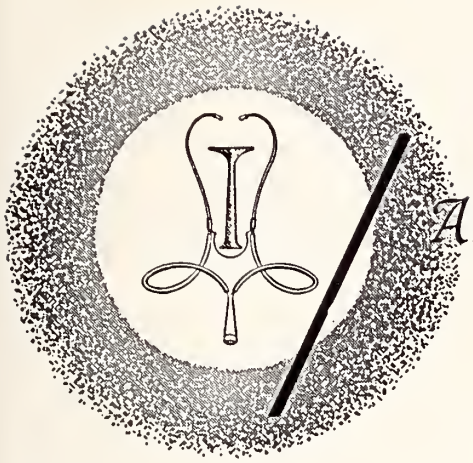
Views of medical education and medical care. Cambridge, Harvard University Press, 1968.

Wershub, Leonard Paul. One hundred years of medical progress; a history of the New York Medical College, Flower and Fifth Avenue Hospitals. Springfield, Ill., Charles C Thomas, 1967.

Weyrauch, Henry M. Life after fifty: the prostatic age. Los Angeles, Ward Ritchie, 1967.

Wiener, Leonard. Home treatment: spearhead of community psychiatry. University of Pittsburgh Press, 1967.

Young, James Harvey. The medical messiahs; a social history of health quackery in twentieth-century America. Princeton, Princeton Univ. Press, 1967.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. *Notice of the session is posted in advance to allow the physician time to make preparations.*

SEPTEMBER

Sept. 5-7 — American Association of Obstetricians and Gynecologists, Hot Springs, Virginia. Write Robert B. Wilson, M.D., Exec. Sec., 200 First St., SW, Rochester, Minnesota 55901.

Sept. 13-20 — American Academy of General Practice, Las Vegas. For information write Mac F. Cahal, JD, Exec. Dir., Volker Blvd. at Brookside, Kansas City, Missouri 64112.

Sept. 14 — American College of Physicians (Oklahoma/Arkansas Regional), Oklahoma City. Write William W. Rucks, M.D., 301 N.W. 12th St., Oklahoma City.

Sept. 18-20 — National Cancer Conference, sponsored by the American Cancer Society and National Cancer Institute, Denver Hilton Hotel, Denver. Write Roald N. Grant, M.D., Coordinator 6th National Cancer Conference, c/o American Cancer Society, 219 E. 42nd St., New York 10017.

Sept. 25-27 — *Problems Affecting the Cerebral, Renal and Peripheral Circulation,* presented by the Council on Clinical Cardiology of the American Heart Association, and the Cleveland Clinic Foundation, Bunts Auditorium, Cleveland, Ohio. For information write Council on Clinical Cardiology, American Heart Association, 44 E. 23rd St., New York 10010.

Sept. 28-Oct. 3 — International College of Surgeons, 33rd annual congress of the North, Central American and Caribbean Federations and first joint meeting with the South American Federation, Honolulu. For information write the International College of Surgeons, 1516 Lake Shore Drive, Chicago 60610.

OCTOBER

Oct. 5-6 — Second National Congress on Medical Ethics, sponsored by the Judicial Council of the AMA, Drake Hotel, Chicago.

Oct. 9-11 — 15th Western Cardiac Conference, University of Colorado Medical Center, Denver. For information write the Colorado Heart Association, 1375 Delaware St., Denver 80204.

Oct. 21-23 — 75th convention of the Association of Military Surgeons, Sheraton-Park Hotel, Washington, D. C. Write the Association of Military Surgeons of the U. S., 1500 Massachusetts Ave., N.W., Washington, D. C. 20005.

Oct. 21-25 — 19th annual session, American Association for Laboratory Animal Science, Las Vegas. Write Dr. W. H. Dieterich, Animal Resources, Inc., Box 34, Woodsboro, Maryland 21798.

POSTGRADUATE EDUCATION

University of Kansas:

Oct. 3-4 — ***School Health***

Oct. 15-16 — ***Medicine and Religion***

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

Sept. 30-Oct. 4 — *Hospital Medical Staff Conference* (Estes Park)

Oct. 7-11 — *High Risk Infant Care* (Limited)

Oct. 28-30 — *Workshop on Respiratory Insufficiency* (Limited)

(Continued on page 398)

Obituaries

MARY E. EVANS, M.D.

Dr. Mary E. Evans, 46, Overland Park, died May 10, 1968, at Providence Hospital in Kansas City.

Dr. Evans was born in Newton, Kansas, on October 2, 1921. She received her doctor of medicine degree from the University of Chicago School of Medicine in 1951, after which she interned and took a residency in pediatrics at the University of Kansas Medical Center. She began her practice in Kansas City in 1954. She was on the staff of Providence Hospital and the University of Kansas Medical Center, where she also was a member of the faculty in the pediatrics department.

Surviving Dr. Evans are her mother, adopted nephew, and a sister.

FRANK JAMES, M.D.

Dr. Frank James died at his home in Galena on July 11, 1968. He was 85 years old.

Dr. James was born on February 9, 1883, at Archie, Missouri. He was graduated in 1910 from the University of Louisville School of Medicine and began his medical practice at Hartner, Kansas. After serving in the medical corps during World War I, he moved to Wichita where he remained for 16 years. He moved to Galena in 1935. Dr. James was in charge of the Cherokee County Health Department and also served as health officer for the city of Galena.

Survivors include his wife, daughter and stepson.

FRED J. McEWEN, M.D.

Dr. Fred J. McEwen, Wichita, died on July 6, 1968, at the age of 74.

He was born June 19, 1894, in Fairbury, Nebraska. Dr. McEwen received his medical degree from the University of Kansas School of Medicine in 1921. He interned at Montreal General Hospital, Montreal, Canada. He was in medical practice in Iola for several years before moving to Wichita. Dr. McEwen was one of the founders of the Wichita Clinic.

He is survived by his wife, son and daughter.

KANSAS STATE DEPARTMENT OR HEALTH
TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence

Summary of Cases Reported in May, 1968 and 1967

Diseases	May 1968	May 1967	May 5-Year Median 1964-1968	January-May Inclusive 1968	January-May Inclusive 1967	January-May Inclusive 5-Year Median 1964-1968
Amebiasis	—	—	1	4	5	4
Aseptic meningitis	—	—	—	—	—	—
Brucellosis	1	—	1	2	—	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	—	—	4	2	4
Encephalitis, post-infect.	4	—	*	5	—	*
Gonorrhea	324	360	277	1,595	1,625	1,183
Hepatitis, infectious	51	11	29	145	72	145
Measles (Rubeola)	—	*	*	8	*	*
Meningococcal meningitis	1	4	1	14	6	7
Mumps	95	*	*	687	*	*
Pertussis	—	—	—	—	3	6
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	1	2	2
Rubella (German Measles)	9	*	*	108	*	*
Salmonellosis	13	12	13	73	68	73
Scarlet fever	4	2	4	25	50	56
Shigellosis	14	1	2	27	11	34
Streptococcal infections	109	146	123	1,510	1,428	1,428
Syphilis	107	95	95	432	449	432
Tinea capitis	—	3	5	27	30	27
Tuberculosis	16	27	27	94	107	107
Tularemia	—	—	—	1	7	2
Typhoid fever	—	—	—	—	—	—

* Statistics not available.

TYPHUS VACCINE

Effective insecticides and generally improved standards of living have permitted many populations to free themselves of louse infestation, and thus of louse-borne (epidemic) typhus. The United States has not experienced an outbreak of louse-born typhus since 1922. The last reported case, 1950, did not result from an indigenous source of infection.

Although a human reservoir of latent typhus infections persists in many parts of the world, typhus is at present no threat to United States residents visiting most other countries. This is true even in places still reporting cases if travel is limited to urban areas with modern hotel accommodations. A potential threat exists only in mountainous, highland, or other areas where local conditions favor louse infestation.

Vaccination against typhus is not required by any country as a condition for entry. However, vaccination may be indicated for travelers to rural or remote highland areas of Ethiopia, Rwanda, Burundi, Mexico, Ecuador, Bolivia, Peru, and mountainous areas of Asia.

Typhus vaccine is prepared from formaldehyde inactivated *Rickettsia prowazekii* grown in embryonated eggs. This vaccine provides protection against only louse-born (epidemic) typhus; it does not protect against murine or scrub typhus.

The primary vaccination schedule consists of two subcutaneous injections four or more weeks apart. Dose volume should be determined on the basis of the manufacturer's recommendations accompanying the vaccine. Booster doses consisting of a single injection of vaccine at intervals of six to twelve months should be given as long as opportunity for exposure exists. The primary series need never be repeated for booster doses to be effective. Reactions to the vaccine

usually consist of pain and tenderness at the injection site. A few individuals have reportedly experienced exaggerated local reactions and fever, presumably a manifestation of hypersensitivity. As is the case for all vaccines propagated in eggs, typhus vaccine should not be administered to anyone who is hypersensitive to eggs.—Adapted from *Morbidity and Mortality Weekly Report*, NCDC, USPHS, Vol. 17, No. 21, May 25, 1968.

Typhus vaccine is available from the State Department of Health for the protection of servicemen's families, peace corps workers, missionaries, and other Kansas residents who may travel to the above named countries. During 1967, this department provided upon request 748 doses of typhus vaccine to health departments and physicians for the protection of Kansas citizens.

Announcements

(Continued from page 395)

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

Oct. 31-Nov. 2 Annual course in *Gastroenterology* sponsored by the American College of Gastroenterology, Statler Hilton Hotel, Boston, Massachusetts. For further information write the American College of Gastroenterology, 33 W. 60th St., New York, New York 10023.

AAGP ANNOUNCES NEW PRACTICE MANAGEMENT GUIDE

A 105-page manual designed to provide the general or family physician with professional help in handling the complicated business aspects of medical practice and the important community and professional relationships involved has been developed by the American Academy of General Practice.

The 30,000-plus-member Academy is the national association of family doctors and the largest specialty group in organized medicine.

The manual "Organization and Management of Family Practice" attempts to fill an urgent need for expert advice in an area largely neglected by medical schools and professional organizations, states Dr. Raymond M. Kahn, chairman of the AAGP Committee on Medical Economics which guided development of the manual. It is aimed at the graduate who wishes to avoid costly errors in establishing his first practice, and the practicing physician who wants to evaluate the efficiency of his present office procedures, Dr. Kahn says.

The illustrated handbook contains three major sections, including an introductory description of the content of family practice and the functions of the family doctor; a major middle section dealing with the business of running an office practice, and a third part describing the community resources and professional associations available to the practicing physician.

Members of the Society of Professional Business Consultants, a national association of business management consultants, were retained to study the unique problems of running a medical practice and to develop the 50-page middle section on Practice Organization and Management, Dr. Kahn noted.

This section provides guidance to the new physician on such vital decisions as what type of private practice to enter; what region, state and type of community will best satisfy his personal, professional and economic requirements for a practice location; how to select the ideal office layout, decorate attractively and functionally, and select expensive office, diagnostic and laboratory equipment.

In the area of office management, the manual offers detailed professional guidance as well as practical tips from experienced practitioners in selecting, training and keeping an effective office assistant; efficient record-keeping of patient clinical and financial histories and office accounting; establishing an efficient office appointment system, fee schedule and credit, collection and third party billing procedures.

Copyrighted models of the patient record forms, billing statements and office business forms discussed are reprinted actual size at the end of the section.

Two final chapters in the section deal with the professional and personal insurance desirable for private practice and the unique personal spending and investment problems of the private practitioner and his family.

The next to last chapter deals with the professional associations (hospitals, social welfare agencies, blood banks, nursing homes, pharmacies, etc.) and business contacts (management consultants, attorneys, banks, credit agencies, etc.) which every doctor must rely on. The final chapter discusses the services and programs available to family doctors through membership in such professional associations as the American Medical Association, American Academy of General Practice and local medical societies.

The manual is being made available to all Academy members. It also will be made available free of charge on request to medical students, interns, residents and medical school and hospital libraries. Others interested in obtaining a copy may do so at $1 per copy from the American Academy of General Practice, Volker Blvd. at Brookside, Kansas City, Mo. 64112.

NEW FILM ON CANCER DETECTION

"Cancer Detection: Routine Proctosigmoidoscopy," a new 20-minute color film, was premiered in June at the annual convention of the American Medical Association, held in San Francisco.

"This demonstration film was produced to help physicians perform a simple office procedure for early detection of asymptomatic cancer and adenomas of the colon and rectum," said Emerson Day, M.D. Dr. Day is Director of the Strang Clinic of the Preventive Medicine Institute, New York, where the filming was done.

Over 44,000 persons in this country die each year of colon-rectum cancer, according to the American Cancer Society. More than half of these deaths are needless and could be prevented by the use of the examination featured in the film.

In his review of this film, Roald N. Grant, M.D., Vice President for Professional Education, Medical Affairs Department of the American Cancer Society, said: "This is an excellent film which will encourage physicians to do more proctosigmoidoscopy examinations. The endoscopic footage is some of the best I have seen; the clarity of lesions and the use of the scope were extremely well handled."

Sidney G. Page, Jr., M.D., Medical Director of C. B. Fleet Co., Inc., the sponsors of the film, reports that a 75 per cent to 90 per cent cure rate results from removal of asymptomatic malignant lesions of the colon and rectum compared to a 35 per cent cure rate of symptomatic operable cancers. "Routine proctosigmoidoscopy in the 'healthy' adult is the key to detection of cancer of the colon and rectum at its more curable stage, since approximately 70 per cent of colonic and rectal carcinomas can be directly visualized by the standard sigmoidoscope," said Dr. Page. "In addition, the detection and prophylactic removal of benign adenomas—precursors of most cancers of the colon and rectum—is an important preventive measure."

Dr. Day has supervised the preparation of an illustrated brochure detailing the entire procedure which is available for distribution when the film is shown.

The film is available for professional organizations, hospitals, clinics, etc. without charge from the C. B. Fleet Co., Inc., P. O. Box 1100, Lynchburg, Virginia 24505.

NEW SCIENTIFIC JOURNAL ON STROKE

David Lukens, M.D., president of the Kansas Heart Association, has announced that the American Heart Association will publish a new scientific journal entitled *Stroke—A Journal of Cerebral Circulation.*

The publication will be the first to bring together the laboratory and clinical research being conducted in the many areas of medicine which touch on the cause, prevention and treatment of stroke patients. It also will report studies on the circulation of blood to the brain.

Both the American Academy of Neurology and the American Neurological Association have agreed to cooperate with the American Heart Association in the publication of the journal.

Initial publication date has not yet been set, but the journal will subsequently be issued every two months. The project, which reflects the widening responsibility of the Heart Association to stroke patients and to physicians treating stroke, was proposed by AHA's Council on Cerebrovascular Disease and approved by the Board and Publications Committee of the Association.

Appointment of an editor and editorial board for the new publication will be announced at a later date.

The American Heart Association publishes two additional professional journals, Dr. Lukens added, both on a monthly basis. They are *Circulation,* devoted to clinical research in cardiovascular disease, and *Circulation Research,* which primarily reports on basic research in the cardiovascular field.

Stroke, technically known as "cerebral accident," occurs when an artery which serves the brain is blocked, ruptured or injured. The disease is responsible for approximately 200,000 deaths in the United States each year.

Further information concerning *Stroke—A Journal of Cerebral Circulation* may be obtained from the Publishing Department, American Heart Association, 44 East 23rd Street, New York, New York 10010.

LEGAL TO SELL RECORDS?

Is it ethical for a physician, retiring from practice, to sell his patients' records to another physician?

According to an opinion adopted by the AMA Judicial Council in November, 1967, a physician's records have been developed during the physician-patient relationship. This relationship, referred to in Section 9 of the *Principles of Medical Ethics,* requires that a physician not reveal the confidences entrusted to him in the course of medical attendance. Therefore, since the physician's records summarize these confidences, they too are cloaked with this same protection.

The Council states further that a transfer of a patient's records, without his consent, would violate this confidence. However, with the patient's consent, his records may be transferred to a physician of his choice and a reasonable charge made for secretarial or duplicating services.

Furthermore, the Judicial Council declares that a physician may not ethically *purchase* such records from a retiring physician or from the estate of a deceased physician.

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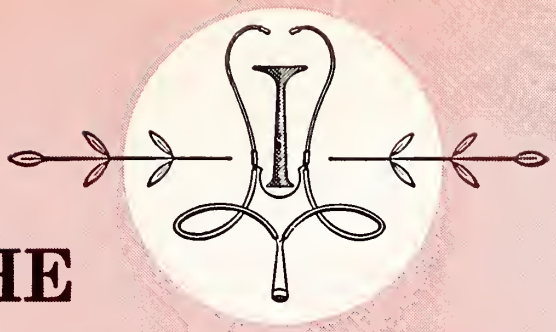
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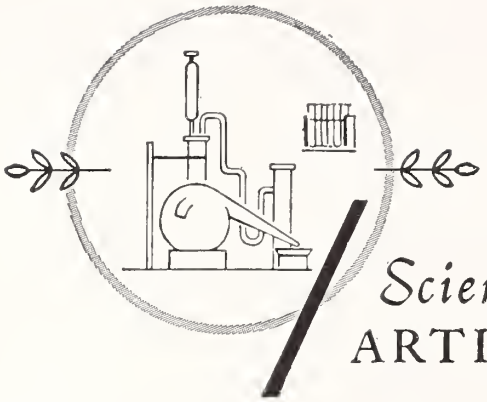
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Special Issue

Central College Health Association

Dr. William Nice has been in charge of the Student Health Service at Washburn University of Topeka for nine years, and in this capacity has done far more than the usual perfunctory duties of the position. Active in the Central College Health Association, he was its president this year, and was host for the annual meeting of the organization at Washburn on March 14-16, 1968. As a result of his enthusiasm, the meeting was expanded, and the attendance was about three times the usual number. The papers presented in this issue of the Journal are from this meeting, and are presented with assurance that they will prove to be of interest to our members.

—Editor



Scientific
ARTICLES

Becoming Somebody—

The Achievement of Emotional Growth During the College Years

J. COTTER HIRSCHBERG, M.D.,* ***Topeka***

FOUR MAJOR ADJUSTMENTS must all be achieved simultaneously during the college years (17-22 years) if the task of "becoming somebody"[1] is to culminate successfully. The first of these adjustments is to *effect a healthy independence*. The wish for emancipation is often expressed by denying the standards of the older generation and accepting the philosophies of one's peers; such emancipation is often best done and safely done in the protective and stable college setting. The emancipation (and defiance) of the young adult can remain predominantly verbal as long as the attitudes of the college favor his achieving adult adjustment rather than interfering with it by prolonging childish dependence, by too strict control, by hostility and anxiety to the young adult's wish to share in decisions and policies which accept or reject his adulthood. A healthy level of adult development cannot be achieved in an emotional vacuum, but requires interaction. However, this interaction should lead to healthy independence, not to rebellion, and it is achieved not in an "all at once" fashion but is done through intermediate steps. The student uses the college as a place to search for (and hopefully to find) stable identifications and ideals. Gradually the college student acquires an adult point of view that grants genuine recognition of the fact of the existence of others, and of their "rights and privileges" as well as his own. As the student asks what life is about, what he can get out of it, what he must contribute to it, and how to become part of the community and the world, the student gradually assumes adult standards and responsibilities. In this growth process, one continually sees the double strivings, the unpredictable contradictory strivings that go on within. The adolescent college youth is sometimes individualistic, sometimes social; sometimes rude and selfish, sometimes tender and giving; sometimes lazy, sometimes diligent; sometimes involved in intense loves, and intense, sudden abandonments; sometimes practical, sometimes idealistic.[3]

The emancipation of the college student normally makes the parents anxious since it involves secretiveness, less open affection, a lack of consideration of the parents, and an intolerance of siblings. The parents worry over a "loss of love" because they fail to see that their son or daughter is only losing childish ties and childish dependency but does not wish to abandon his parents. The college years allow the student the temporary use of certain defenses: hyper-

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Presented as the Keynote Speech at the Central College Health Association meeting, Washburn University, Topeka, March 14-16, 1968.

developed intellection, idealism and asceticism, transient withdrawal, transient inferiority feelings and depression, and counter-phobic attack on the problems.

The young adult is in a state of physical disequilibrium due to physical growth, and a state of psychological disequilibrium due to the shifts occurring between impulses, reality and conscience. The wish to be loved is increased by the added sexual urges; the wish for independence is heightened by the increased aggressive drive. At the same time, the demands from reality are both great and inconsistent. Further, the conscience is weakened when the need to separate from the parents weakens the internal representations of the parents in his conscience.[4]

Josselyn[4] vividly describes how the superego reacts at times by becoming less vulnerable and increasingly rigid, and gains strength at the price of flexibility with the young adult handling his anxiety by fearfully establishing inflexible laws of behavior. There are new concerns ("What will people think of me?" "What will people think of my parents?" "What will people think of my friends?") and the college student often attempts to deal with the emotional instability normally by periods of withdrawal, a recoil for re-evaluation of the change and a regrouping of defenses.

Gitelson[2] identifies this instability by describing it as the "irridescence of adolescence," and correlates the physiological changes of adolescence with the variable balance between the primitive impulses and the ego, feeling this instability partly explains the college student's disequilibrium. The student is trying to find out what life is about; what he must contribute to it; what he can get out of it. He questions. He doubts. He ventures forth on his own. He disagrees with elders about what they say, or do, or what they advise. All this is a gradual shift from instability to mature responsibility.

The college years represent a period of gradually acquiring an adult point of view, and being able to see oneself as one of the group while still feeling oneself as having one's own life to lead. In this gradual achievement of stability the adolescent can be guided (subtly, not forcefully) so that he both maintains his self-image and achieves ease with others. Eventually such integration helps him to think not only of himself but of others, to be tolerant and to become a part of the world in which he lives. To achieve this maturity, the conflict between his wishes, and the reality, and his internal standards must be adjusted without sacrificing completely either the satisfactions for wishes and needs, or all of the ethical ideals. The wishes of the young adult do *not* always require that they be directly gratified, or repressed; they can be achieved indirectly through sublimations and achievements. It is to this end that the student, his college and his parents are working so that he can learn, can work, can love and marry, and can become part of a community.[3]

The second of the necessary adjustments is to *decide upon a vocation and do work in preparation for it.* To gain necessary self-regard, to achieve the approval of the social world and of the opposite sex, the student must recognize the value of work. He must prepare himself for a career which he feels will bring credit and recognition to him, and he also must plan for this career with some consideration of the reality resources within himself and of the economic resources within his family. The conscious choices of the college student may be at variance with reality since these choices are often motivated by factors of status and prestige factors which require the student to evaluate his career choice in comparison with the choices made by others within his peer group. Here the young adult's own feelings of insecurity, of inadequacy, play important roles. For example, if his interests are centered on his own strength and power, or if he is using ascetic idealism or intellectuality as a defense, these may then enter into the determination of choice, just as the girl's belief in her own loveliness or lack of it may influence her thoughts about marriage and career.[3]

The family and the socio-cultural setting which reinforces or hampers masculine identifications for the boy (and feminine ones for the girl) can through this create or block various career choices. If the identification with the parent of the same sex has been unsure, the student may find that his freedom to make work and career choices will be similarly uncertain.

When the family or the college environment cannot aid in the solution of the dilemma about work, the adolescent often uses his peer group in support of or in restraint toward certain career choices. The group may be particularly useful to a student who struggles with fears of personal failure. Strong identifications with a positive group may reinforce his constructive defenses while sanctioning his efforts to be himself. Such identifications become even more important as the student deals with internal confusions and inadequacy feelings about his role in life.

By experiencing frustration and by experiencing the satisfactions of independent activities, the college student not only tests his own adequacy, but he learns to deal with a world of reality, instead of one of fantasy or imagination. The student needs guidance so that he does not impulsively expose himself to situations beyond his capacity, and so that

he may work toward challenging but achievable and accepting goals. To take on inappropriate adult responsibilities makes maturity not an achievement but a tenuously grasped and therefore frightening thing.

Thus the college student must:

1. Recognize the value of work.
2. Feel able to contribute to society through the work.
3. Reinforce masculine identification for the boy and feminine ones for the girl through the work and career choice.
4. Solve the problem of status and prestige in comparison with others.

The *third* major adjustment is to *bring about a satisfactory relationship with the opposite sex.* The college years allow for a period for the development of a healthy adult level of sexuality. Since the acceptance of sexuality is often tenuous and confused, the college student frequently attempts to lessen his anxiety about his increased sexual feelings by transient but intense friendships with peers of the same sex, as well as through peer group attachments. These individual and group friendships lead also to competition and rivalry which heightens the dependency-independency struggle. Out of the hostility and anxiety aroused by this struggle, the student may feel an increased wish to avoid, to escape, and to regress to dependent childish wishes. These wishes then may only add to a sense of inadequacy, immaturity, and unsureness about his ultimate healthy adult sexuality and about his ability to achieve in work as well. Healthy adult sexuality means a mature loving consideration of other persons, and an acceptance of the free mutuality of the others as well. Although the college student has frequent feelings of guilt for indulging in previously forbidden activities, he also has feelings of shame if he does not try to achieve active heterosexuality. Thus his sexual wishes are bound by inevitable anxiety.

The fourth major adjustment is to *develop a sense of clear identity during the college years.* This identity which is not so dependent on the preceding identifications of childhood means, however, a separation from those earlier identifications, and thus means a sense of disruption of those earlier images of the self. For this reason, the college student is often involved in the introspective ruminations regarding his role in life, his destiny, the questions about life and death, and the doubts which such questions always bring. However, success in school work, in his career, in social relations, gradually leads to emergence of his own clear identity choice. Erikson[1] speaks of the "dire urgency" involved in achieving this new identification. The college student can no longer speculate or play regarding "what it will be like when I grow up," but is required to make serious decisions and choices. Yet the new identity choice should not be a discontinuity with earlier life. Erikson[1] says there needs to be a "sense of inner continuity and social sameness to bridge what he was as a child and what he is about to become," and he will need to "reconcile his conception of self with the community's recognition of him." The adolescent needs community recognition regarding his capacity to work and regarding the extension of himself into wider sections of society. Often the student's feelings of inferiority reflect his failure to measure up to the image of himself which his parents (and society) have compelled him to adopt. The conflict between his idea of what he wants to be and that of society and parents leads him either to withdraw, or to identify himself with a peer group. This often leads to conflict with parents and with society, which diminishes only when the young adult finds substitute satisfactions in his college work. Such maturity means a less pronounced social dependence on other persons or on the environment. The college student thus becomes a "person belonging to a specific population group with an attitude and behavior pattern, and a status of its own."[5] Often, parents and society desire as the end-point of a college experience a healthy adult adjustment, yet unconsciously resist and hinder the necessary intermediate steps.

The college as well as the parents must provide clear ideals and images for identification and for the reinforcement of constructive defenses. The college student must move away from the parents to important relationships within the college group. He can accept the imperfections of this society more easily than the imperfections of his parents, and he can use the reality strengths and imperfections of this society to come more easily to rely on himself. Success or failure in the college setting, and the consequent submission or independence, is always closely associated with the student's eventual sense of adequacy as a man or woman. In the college life, the intelligent use of authority for security and protective control is often necessary, but such use of authority should rest on a structural (societal) basis rather than a personal one.[5]

As the college helps the adolescent into experiences and opportunities that will give him skills and strengths to achieve a healthy independence, he feels understood and comes better to understand himself and to be on his own. The student's strivings for independence and for intellectual and social achievement are fostered when the college fosters his good qualities rather than criticizes his less desirable ones. Gitelson says that in the therapeutic task as well as in the socio-cultural task, the adolescent must be pro-

vided with "concomitantly and in nice balance: a dependable relationship and emotional freedom; dependent security and developmental stimulation; control and an ego ideal."[2] The goals of college for the emotional health of the student are to enable him to develop a capacity to share with and enter into a group without threat to or loss of sense of personal identity, to feel that he is a part of a group, to have a well-defined role, to have a comfortable sense of adequacy and achievement, and to be responded to and to be given recognition.

These desired ends come about if the college student is not freed of all responsibility or guilt, but is helped to learn to deal with the reality world and not a fantasy one. This occurs when the student grows by experiencing frustration, and by experiencing the satisfaction of independent activities. In all this, the student needs to be given the benefit of framework, of guidance, of limits. The student needs to work toward challenging, but achievable and acceptable, goals. He needs mature guidance because he is apt to impulsively expose himself to a situation beyond his capacity. Thus, the adult, the teacher, has several functions in his relationship with the college student. The teacher is needed for dependency gratification and for support, a relationship in which the student can let go later. And the teacher is needed for identification. Because of this, the adult needs to maintain his own mature yet flexible availability.

I hope that within each of you as health educators all that I have discussed has struck a familiar chord. The goal of this paper was not to bring "new facts" but to create new awarenesses of yourself and your everyday tasks. If you can become aware, the task of helping the college student is already begun. Four areas of awareness are particularly helpful. First, the health educator needs to recognize that he is given a father-figure role in his work with college students, and he needs to accept this responsibility as well as not to impose upon it. The father-figure role with certain students cannot be evaded. Rather, it is a tool which you have been given and which you need to understand in order to decide how to use it in ways which are healthy.

Second, it is necessary to recognize that a major task of the educator is to offer the college student something that is worth working for. It is hollow to work for minimal goals. Worthwhile lives require sacrifice. Responsibilities have to be faced. People have to reach beyond themselves. The educator has the tough task of helping these young men and women build themselves, and we have to have goals and responsibilities in mind for such building. If the educator doesn't offer something worth working for, students won't work with him and won't work within the university either.

Third, it is necessary from time to time for you to take a look at yourself to reconsider where you are and what you are. Reinventory your values from time to time. An additional hazard that young adults pose to educators is that they make him regretful. But regret is only a problem when one doesn't face it. See where you are and ask yourself where you would like to be five years from now, ten years from now, twenty years from now, and what it will take to get there, because that is what the young adult is going to be doing. He is going to be looking at himself, and this kind of looking is painful to you only if you aren't willing to look at yourself in this way. When your business is the business of helping people, and particularly the business of working with young adults, then you've got to state as clearly as you can where you want to go, so that you and the college do not end up merely going where the young adult wants to go. Choices must be made mutually; but commitment comes from selection, not from default.

Fourth, it is necessary for the educator to lead a life apart from his job. He needs a life apart from the college as well as a life within it. So much of the work has to do with the poverty of youth that one has to be able to replenish oneself when one is continually required to give. To do this requires as practical a thing as budgeting one's time: so many hours for recreation as well as so many hours for work. One has to recognize that the life of an educator is made up of many things and, if one is going to work with young adults, one has to find reasonable ways of restoring oneself out of one's own life. Otherwise, and particularly when working with young adults, one gets the feeling that time is passing one by; life is going on; students are looking younger every year.

The young adult today, with all his strengths and struggles comes to college seeking to grow and to learn, and the educator offers help to him—his own help and the help of the college offered through the good and considered use of himself and his teaching and counseling skills.

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The Student-Patient

The Role of Physician and Nurse

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As I ACCEPTED this particular assignment, it seemed quite simple to point out the roles of the physician and the nurse. The futility of listing the duties of these professionals should be obvious as all of you know what doctors and nurses do and what role they play in society. All of you know that the M.D. treats those who are ill and in need of medical care and that the R.N. ministers to the ill and carries out the treatment as prescribed by the doctor.

When we think of the role of the M.D. and R.N. in the College Health setting, we must think of a little different "breed of healer." This is exactly what I would like to have you speculate about with me. What makes those of us who deal with college students different? Or are we really different from usual physicians and nurses? Maybe we are since my patients often wonder if they should see a real or a regular doctor! I think we are different and that we occupy a unique position as we prescribe and treat our student patients. I'll attempt now to offer some reasons for my thinking and I hope this will be provocative and encourage you to think further about this.

First, we have a most unusual patient—the college-age client who often is experiencing his first health problem away from his friendly home environment. This often is our first problem—we must adequately treat and please a consumer who is often afraid and who has a limited knowledge and experience in handling his health problems. This young, impressionable patient is apprehensive and worried because of his initial experience with illness away from mother and home base. So, this offers the health worker an opportunity to not only treat the specific disease process but to support this inexperienced patient so as to relieve much worry and anxiety. At the same time, we have an excellent opportunity to begin or continue the health education process.

So, we have a patient who needs to learn how to meet health problems and how to evaluate medical wants, needs, and services. Thus, we need to be alert to giving the "Tender, Loving Care" which our patients need. This is quite appropriately given by a nursing staff that must be alert to patient needs and wants. The physician must adequately treat the illness and at the same time sell the product to the consumer.

I know that much of the above may be true about the general practice of medicine but I think more so in college health medicine.

What things I have alluded to can probably be even better explained with a few short examples. These will be brief, but point up some of the real needs of our student patients.

An 18-year-old white male appeared at the emergency entrance of the Student Health Center and, when met at the door by a "motherly" R.N. figure, broke down in incoherent crying about not being able to continue. Even before anyone else could be called, the R.N. quickly led the boy to a treatment room, calmed him down and helped him over this hump. When last seen by me, he was being admitted to the hospital and was calmly eating a bowl of ice cream.

This episode could have been badly handled by someone not quite so sympathetic and alert to the needs of a crying big boy.

A 20-year-old white male came for a complete physical for participating in the athletic program. In the course of this, he was questioned about past illnesses and health problems and was completely examined. During the examination, it became obvious that he had a slight scoliosis and a pelvic tilt due to a short leg. When asked if this had ever been pointed out before, he said "I haven't ever had this complete a health interview and exam and I don't believe a short leg would have been found." With such a remark, I felt a bit embarrassed for medicine as I don't have a corner on complete and adequate examinations. It is too bad that this man had to wait this long to have a complete examination but I believe it fortunate that he learned about one then.

A 19-year-old white female demanded to be seen during a very busy clinic schedule. It was necessary that she see the doctor within the next 15 minutes. When called, she related that she was due at final examination in a course about which she was extremely worried and so had come in for moral support and encouragement. It so happened that she had on several occasions during the semester visited with this particular M.D. about her health and psychosomatic problems

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which were related to her progress in school. On interview, she very abruptly stated, "Doctor, I need you to tell me again that I can get through this course and so not be a failure. You have helped me along and supported me to this stage and if I pass this course, I'll be in good shape this semester!"

In the few minutes she had before the exam, the student and M.D. reviewed her progress in the course, and she was reassured that she could pass the final! She did too.

This points up the fact that the much advertised "Doctor-Patient" relationship can and does exist in our settings if given adequate support by both.

We are constantly hearing of comprehensive health care, treating the patient and not a disease, ministering to the whole patient, etc. This type of complete care is a natural for those of us in student health medicine as we usually have some facility to offer extensive medical diagnostic and treatment service. Also in our more regulated practices, we have the ideal opportunity to offer the best of care.

Here I refer to the best as the first class type of medicine that can be given by adequate attention to the patient and his problem. We must lend our sympathetic, understanding ear to the personal history which quite often will be poured out in copious volume, if our young patient finds that he is able to bend a sensitive ear. Through this time-honored medical technique of "history taking," or listening, we will begin to offer immediate help and acquaint the consumer with some idea of what medical service should be. This is an excellent opportunity to listen, examine, diagnose, explain, treat and educate. Of course, this is what every visit to a physician should be, but a visit to a college health facility offers an even greater opportunity since the chance to do some health education is occurring within an education background and natural setting. Thus, the fruit is maturing and ripe for plucking! This is the opportunity to fulfill an educational mission as well as to offer a medical service. If we carry this task off properly, we will build up a tremendous amount of good will between patients and the medical profession. If we do this job poorly, we will end up with a disgruntled client who will not have a warm spot in his bosom for medicine, nursing and our allied professions.

Much of what I have mentioned above is apropos of general medicine and nursing, but I think more so of our particular type of practice with the college-age youth and young adult. The impatient, at times frightened, impressionable, young medical consumer needs a special and extra type of care and service. He needs this not only because of the unique position he is in but also because we are obligated to offer the necessary health education so that he can become an educated buyer of quality medical service. If we do not convince this client that we are "interested in him as a person" we will most certainly send him off to other sources and types of medical service. We need to merchandize and sell a good product, and we have the ideal situation to sell the buyer on the value of the services rendered.

If we set out with a philosophy of being of service to our students and doing the best job possible, all the gaps in our exterior will be well chinked with patient appreciation and gratitude. This is the true reward for our type of service.

In conclusion, I'm sure the above sounds like the pep talk to the medical school class, but it is as I intended it. I believe we college health physicians and nurses occupy an unusual position with our students in that we should be able to make lasting impressions if we will but do a really adequate medical job and lend a sympathetic ear. This is the practice of medicine and nursing which we have been trained to do. I personally feel that we are extremely fortunate in practicing in a setting where so much can be accomplished.

I charge all of you with doing just a little bit more and just a little bit better so that you convey the proper image of *Medicine* and *Nursing* to our educated multitudes. We are thrust into this situation where it is easy to convince people that we really are interested in them and their problems. Let's not muff the ball! Future generations need to know about good health care and services!

SEPTEMBER IS SIGHT-SAVING MONTH

The September Sight-Saving Month Campaign of the National Society for the Prevention of Blindness and its state affiliates deserves the cooperation and support of all citizens throughout the nation.

A primary aim of the Society's 19th annual campaign is to alert the total community to the many causes of blindness *before* they strike. The Society maintains that half of all blindness is preventable. This publication extends best wishes for the Society's greatest success in carrying forward its noble objectives for better eye health and eye safety for all.

The National Society for the Prevention of Blindness, Inc., founded in 1908 is the oldest voluntary health agency nationally engaged in the prevention of blindness through a comprehensive program of community services, public and professional education and research.

College Health Service

The Necessity for a Well-Defined Health Program in a Small College

WILLIAM R. GALEOTA, M.D.,* *Columbia, Missouri*

IT IS GENERALLY RECOGNIZED that a student's health has an important relationship to his ability to profit from and progress in his total educational endeavor. If a student is in poor health, incapacitated by illness or accident he will be unable to study, attend class and learn as effectively as he otherwise might. A college willing to accept this fact must also be willing to recognize its responsibility to provide a health program commensurate with the health needs of the students on its campus. This in my opinion is a fundamental issue. One at times hears from college administrators that a health program of any magnitude is too costly. While this attitude is debatable, it is likewise irrelevant since the funding for a health program can be charged to the student.

Several factors are important in making an evaluation for the type and extent of a health service the college should provide. These include, (1) the size of the student body; (2) the number of students in residence on campus, including dormitories, fraternal, cooperative and rooming houses; (3) the availability and quality of medical service in the community; (4) the food service facilities provided by the college; (5) the nature and extent of the athletic, intramural and physical education programs; (6) the hazards encountered by students in certain types of instruction and research such as laboratories for chemistry, physics, microbiology, and radiation. In addition, one must consider the commitment the college is willing to make in the area of preventive medicine, environmental health and safety, sanitation and health education. The retention and rehabilitation of students with psychiatric impairment, including those who engage in antisocial behavior, is also a matter for consideration.

Once a decision has been made with regard to the extent and type of health program the college will undertake it is important that this program be well-defined. Its mission, benefits and limits should be clearly stated to avoid misunderstanding on the part of students, parents, faculty, and administration. This also applies to any health and accident insurance which might be included. The responsibility of each individual or agency involved in the program should be clearly delineated and understood. In addition the individual who is charged with the implementation of the program, preferably a physician, should have access to the highest administrative authority in the college.

An attempt to formulate a well-defined health program to cover all small colleges is obviously impossible because of the variables involved. In view of what has been said it would seem reasonable to expect a health program to include as an absolute minimum, (1) provisions for the emergency treatment of illness and accidents; (2) a medical history and report of physical examination with recommendations concerning physical activity, special medication, drug sensitivity and special diet; (3) certain immunizations and tests both for the safety of the individual and the campus community; (4) a history of psychiatric impairment, treatment and current evaluation; (5) an environmental health and safety service to provide the necessary safeguards in food sanitation and safety in the laboratories, the physical plant and grounds. All of these can be included in the functions and responsibilities of a college health service with specialized help either separately employed or obtained from appropriate disciplines in the college or community. It would be difficult to conceive of a college, however small, operating without these minimal provisions.

Beyond these minimal needs one can consider the particular needs of the student. These will vary from campus to campus in accordance with the factors previously mentioned. The small college in a larger city will find an abundance of medical and ancillary services and will use them to a greater or lesser degree. Still it is not uncommon for a small college in this situation to provide a health service because it recognizes the importance of early medical care which is immediately available, a matter of great importance to the student. In addition a large number of colleges include in their health program provisions for health insurance. It is not uncommon to join in

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this effort with other colleges in the area to take advantage of the lower rates associated with larger groups.

Any number of small colleges are located in small communities, with limited medical facilities. It then becomes necessary to provide a medical service for the every day needs of the student. This is frequently accomplished by the use of a nurse. Unfortunately, in too many colleges she is not only the college health nurse but also the entire college health service. She is not infrequently left to manage for herself as best as she can, frequently on an inadequate budget. Her productivity, which at times is amazing, is due to her dedication. A nurse is an integral and important member of the medical service team. She is trained to observe and record symptoms and findings, not to diagnose illness. She is trained to carry out treatment procedures under the direct supervision of a physician. She has neither the ethical or legal right to make a diagnosis or treat patients on her own initiative. The only circumstances in which she can depart from this rule is in an extreme emergency and then only as a life-saving procedure. It is therefore the responsibility of a college administrator to provide a physician to supervise and direct a nurse. In many instances a college health nurse will establish liaison with a local physician on an informal basis because she is fully aware of her predicament. In this instance the relationship is loose, non-procedural, and unofficial. This is undesirable. It is essential that a physician be employed by the college and given a designated title, with the authority and responsibility of the position. The college nurse thereby receives the necessary professional, ethical and legal support she must have. Whether the appointment of a physician involves a salary or some other financial arrangement is immaterial. The important thing is that he receives formal recognition from the college authority and becomes a member of the faculty or staff.

A full-time physician and nurse is the next step in development of a college health service. As needs develop, these frequently in concert with the growth of the college, plans should be formulated to expand the health program. These should be researched, studied in depth and well documented. They should be thoroughly discussed with the administrative head early enough so that if acceptable, he may make timely plans for financing the increased requirements for personnel, equipment or physical facilities as the case may be. At times each increment of expansion of the health service may suggest or require a revision of policy. If this is the case the mission, benefits and limits of the program should be redefined, established and properly communicated to all concerned. With this systematic procedure, as the college grows in size, mission and requirements from a small college to a large one (which seems to be the case these days), it is possible for the college health service to fulfill the needs, within the scope of its responsibility, resulting from this growth.

Considerable assistance is available from the various municipal, county, state and federal agencies including, among others, the health and mental health departments, and the various social agencies. This help includes advice, guidelines, consultations, standards, safety and sanitary codes, and health statistical reports. In some instances actual medical service is provided. The volunteer groups such as the T.B. Association, American Heart Society, American Cancer Society, Mental Health Association, March of Dimes Foundation and others, including local community service clubs are other sources. Professional societies, particularly the county and state medical society, the American Medical Association, Public Health Associations, World Health Organization, Central College Health Association, American College Health Association, American College Personnel Association all complement the civic and volunteer organizations in the numerous services offered. Drug manufacturers and life insurance companies provide considerable literature of value to a college health program. One need only to contact any of these services, preferably with a specific request, to realize how much material help they provide. It is wise to get on their mailing list. Two services of great value for literature are the Government Printing Office in Washington, D. C. and Communicable Disease Center in Atlanta, Georgia. At a minimal cost one can embark on a substantial program of health education while simultaneously upgrading the health program by establishing contact with any of these organizations.

It is impossible to have a well-defined and productive health program without a health service operated by individuals with the knowledge and competence to accomplish the mission. All too often college administrators and others think of the health service solely as a place where the student may receive treatment for his ailments and accidents. While this is an important function perhaps it would be worthwhile to enumerate other ways a health service may be of benefit to not only the student but also to the faculty and administration. To begin with, a determination can be made concerning an applicant's physical and mental health in order to ascertain his potential for academic success. During his stay at the college the health service would have the responsibility to help protect, maintain and, if possible, improve the health of the student. Should his health become seriously impaired or should he prove to be

a hazard to himself or others then the health service should raise the question of his withdrawal from college. Should he wish to return at a later date a recommendation, if indicated, could be made for his readmission. Should a temporary or limited health problem exist, advice can be given for a medical excuse or a reduction of the academic load. The health service can act as an advisory and interpretative agency for the various personnel services, faculty and administrators where not infrequently the health of the student becomes a vital question in decision making. These include Housing, Traffic and Security, Student Union, Student Financial Aids, Counselling Centers, Academic Advisors, Academic Departments (particularly Physical Education and R.O.T.C.), Academic Deans, and of course individual faculty members. The Dean of Students is in particular need of assistance in cases of antisocial behavior. The question of the state of a student's emotional or mental health arises in certain types of misconduct. In these instances an evaluation can be made for the Dean or the Disciplinary Board. The health service may actually act as a consultant in this matter or might also participate in the rehabilitation of the student.

Colleges frequently find the need to have standing faculty committees for different areas of student life. These might include (1) Health, (2) Safety, (3) Admissions, (4) Housing, (5) Traffic and Security, (6) Student Activities, (7) Discipline, (8) Student Personnel, (9) Disaster, (10) Research on Humans, (11) Physical Education, (12) R.O.T.C. Here the health service can make a contribution either by providing a member for the committee or acting as a consultant when the necessity arises.

The college health service, or for that matter, any individual or agency dealing with private confidences, has an ethical obligation to maintain confidentiality. This should be respected by all with whom the health service deals. It also is obliged to determine what information is needed by those involved in a particular case in order that they might perform their duty or fulfill their responsibility. The health service should make every effort to obtain the student's informed consent to release that information.

From what has been described it is obvious that a college health program can be as modest or as extensive as a college desires. With greater involvement more benefits accrue to both the student and the college. It can be increased in any college if the need and desire is present. It can grow with a college that is growing and maintain its effectiveness with proper anticipation and planning. In all instances it is extremely important to make its mission, its abilities, its potential and its limitations well understood.

SHARE YOUR MEDICAL JOURNALS WITH COLLEAGUES OVERSEAS

The doctors of the U.S.A. are being asked to send their medical journals—after they have read them—to colleagues overseas (Asia, Latin America, and Africa) who wish to have access to current medical literature but, either because of currency regulations or actual cost involved, cannot themselves subscribe to medical periodicals. We can supply you with the name, address, and medical specialty of doctors in these areas who would be happy to receive these much wanted journals *(particularly specialty journals)*, which you will mail direct to your overseas colleague.

This is a direct "Doctor-to-Doctor" program which is being sponsored by the American Medical Association with the collaboration of The World Medical Association to help alleviate the lack of current medical publications and to further international good will. Your cooperation in this program will be greatly appreciated and your contact with these colleagues in other countries, we can assure you, will prove very gratifying. If you wish to participate in this program, send your name, address, and titles of journals you will contribute to DOCTOR-TO-DOCTOR PROGRAM, c/o The World Medical Association, Inc., 10 Columbus Circle, New York, New York 10019.

Health Services

City-County Health Department as a Resource

RAY D. BAKER, M.D., M.P.H.,* ***Topeka***

Local health departments afford competent and various health services to the colleges and universities in Kansas. Many of these services are continuous and available for the asking, a fact of which many college administrators may not be aware.

HAVING SPENT 10 YEARS in military preventive medicine practice and residency and only 15 months as local health department director, I was understandably reluctant to give program advice to this group, many of whom no doubt have acquired years of experience in college health. There is manifestly so much variation in the needs and resources, strengths and weaknesses of both colleges and health departments in the midwest that attempting to suggest a universally suitable program is useless. I hope you may come away from this discussion with at least one or two new or different ideas, but if you do not, this exercise has at least served the valuable purpose of forcing me to stop and *consider* seriously means by which the Topeka-Shawnee County Health Department can enrich and supplement our local university's health program; several major possibilities emerge.

Personal Health Services

Most health departments have a broad range of direct personal health services—almost invariably open to everyone and usually at little or no cost. On the other hand, I suspect most college students are poorly informed as to the nature and availability of these services. If they are, then both the blame and the remedy lie with the college health service and administration and with the health department. Locally, there may be many occasions when the college student or his dependents or family can use these services:

1. FAMILY PLANNING CLINIC

   As you may well imagine, this clinic has grown rapidly from its establishment in 1966. During last year attendance increased 67 per cent and it has been necessary to add both staff time and sessions in response to a genuine demand for birth control information and assistance from both the married and unmarried. Patients of all ages are, of course, accepted on a doctor's referral and adult or married minor patients on their own referral.

2. EXPECTANT PARENTS AND MOTHERS CLASSES

   Virtually all organized health departments hold these popular sessions for both prospective mothers and fathers. Here six, two-hour evening sessions and a hospital tour comprise a course which goes far to reassure and answer the numerous questions on birth, postnatal events, normal child development and typical infant problems and care which are particularly prevalent in small, young, mobile families. Some of our most experienced and capable nurses teach this course which is also sponsored by the medical society, local hospitals, YWCA and the Adult Education Department, and which graduates roughly 300 parents annually, representing fully 25 per cent of the primiparous births in the county.

   In recognition of the complex stresses and problems involved, we hold a separate prenatal class for teenage pregnant girls (wed and unwed) to foster optimum mutual support and encouragement.

3. WELL CHILD CLINIC

   A total of 20 well child conferences are conducted monthly in this county at 11 different locations. Public health nurses with special training at the pediatric department of the University of Kansas School of Medicine operate these clinics at which positive health supervision is given children from about six weeks through four years of age. Nutrition, general health and behavior counseling, early detection of possible developmental abnormalities and immunizations are provided—all under the supervision of either the patient's private physician or the health department pediatrician.

   These nursing clinics are correlated with periodic visits to the physician with the net result that more parents' questions can be adequately answered and misgivings successfully allayed than had been possible under the old system. Parents, nurses and physicians seem quite happy with the arrangement.

4. MISCELLANEOUS SERVICES

   In addition to routine immunizations offered in well child clinics, immunizations, gamma globulin, antirabies vaccine and similar biologicals can be provided prospective foreign travelers and communi-

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cable disease contacts as indicated every afternoon at the health center. Chest x-rays can also be obtained at a nominal charge.

5. Public Health Nursing

There are 22 public health nurses assigned to 14 districts in the city and county who furnish broad health services including child rearing and development and family counseling, nutritional advice, assistance in obtaining appropriate medical services, (i.e. medicaid, medicare, hospital, nursing home, retarded children), direct home nursing illness care under a physician's orders, and aid in arranging suitable children's day or temporary foster care or nursing home care for adults.

Many of these services offered and used on a timely basis by a troubled student and his family may make the difference between his remaining or dropping out of college or between his passing or failing.

6. V.D. and T.B. Clinics

The Health Department has a weekly venereal disease and a twice-weekly tuberculosis clinic for the diagnosis, treatment and follow-up care required for these conditions. Fully as important are the complete epidemiological studies done on new cases in these clinics to uncover and follow contacts and sources and acquire distribution and incidence data useful to the college and the whole community in planning effective control programs.

Environmental Health Services

1. Housing

The majority of cities in the United States have a minimum housing code and *some* even make an attempt to enforce it. Topeka's code is enforced by the Health Department, which simply means we have acquired during the last five years staff, judgment, experience—and battle scars—in this sphere. Succinctly, discovering and arranging correction of clearly unsafe and unhealthful living conditions is the purpose of this code. No doubt, a large proportion of college students live off campus and away from home on limited budgets; these students may often subsist in substandard shelter. Surely there must be many opportunities for fruitful cooperation between a concerned college whose authority ends at the campus edge and an equally concerned health department whose authority extends throughout the city. It could be feasible and desirable to have the Health Department perform regular on-campus dormitory surveys and submit findings and recommendations to the college administration.

2. Food Sanitation

Topeka has just adopted the 1962 U. S. Public Health Service Model Food Service Code which, as you may know, is quite broad in its application. It requires periodic inspections by the Health Department of virtually all types of public and private food operations which are carried on regularly or repetitively; it, therefore, embraces clubs, private institutions, hospitals, universities, churches, mobile food units, etc. Our sanitarians are now routinely inspecting university food services and providing food handler sanitation guidance; the resulting reports are given to the University Health Service and their special knowledge of campus conditions and disease incidence is being shared with the Health Department.

With no pretense of being exhaustive and without elaboration, I will cite vector control, epidemiological studies, mental health, mass immunization activities and health personnel training and development programs as additional obvious areas of potential, mutually beneficial collaboration and, mercifully, conclude my remarks.

GUIDELINES FOR NOISE EXPOSURE CONTROL

At last, reliable data have been developed by which hearing loss can be related to noise intensity, frequency distribution and duration of exposure. To meet the need for reliable noise criteria for use in hearing conservation and noise control programs for industrial workers, a set of guidelines has been developed by an Inter-Society Committee of industrial physicians and industrial hygienists. These data represent the first attempt to extract and condense pertinent information from various scientific literature sources into a meaningful and authoritative guide for the protection of hearing of industrial workers.

It was pointed out that generally many years of exposure to high noise levels are required to produce significant permanent impairment in the exposed group and that there are marked differences in the hearing of individuals and in their response to noise. While a portion or all of a hearing impairment may be due to causes other than noise exposure, the Guidelines are directed toward the prevention of that portion of the permanent hearing loss resulting from exposure to steady noise. It is believed that the Guidelines will aid industrial management in recognizing the need for noise control programs and will be useful in establishing such programs.

The organizations which cooperated in the preparation of these Guidelines include the Industrial Medical Association, the American Industrial Hygiene Association, the American Conference of Governmental Industrial Hygienists, the American Academy of Occupational Medicine and the American Academy of Ophthalmology and Otolaryngology.

Copies of the report, entitled "Guidelines for Noise Exposure Control," are available at 30¢ each from the Industrial Medical Association, 55 East Washington St., Chicago, Illinois 60602.

Human Sexuality—

Why Sex Education?

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UNTIL RECENTLY, THE USUAL RESPONSE to this question has been to formulate another question such as "Who needs it?—we have enough problems." There have also been cultural and societal reasons, most persistently pursued, for wishing to avoid the question altogether. Or, a response frequently heard, is in favor of sex education as a means of reducing the rate of venereal disease, illegitimacy, abortion, homosexuality and other problems. None of these responses answers the question, as there is little documented justification for continuing to circumvent the question, or for expecting a panacea for socio-sexual ills.

It is time to update thinking about human sexuality to the 20th century and to begin exploring its implications for the 21st century. These implications clearly underscore the need for better understanding of the sexual component of personality and of life, requiring education at many levels. Perhaps this is answer enough to the question of sex education or education about sexuality.

What's the Furor About?

On the college campus it centers around the provision of contraception to non-married college girls, related to premarital sexual patterns.[1]

In the community, it is often focused on the illegitimacy rate related to the taxes to support the offspring.

In families, because of the generation credibility gap; doubt, confusion and distrust are the elements of disruption and concern.

In the society, in general, the issue is a changing morality related to at least a public conviction that sexual standards are on a steady decline.

These obviously oversimplified comments are used to illustrate the discomfort surrounding discussions of sex education as it relates to these issues. They require self searching about the goals of a culture which proclaims its "protection" of children, its belief in the family unit, and its commitment to education. But are these issues confronted in the educational process—are students provided with fundamental learning experiences which will permit them to understand their own sexuality as part of self-identification and image and to assume responsibilities later as mature citizens in matters of sexual concern?

The "real world" of today tells us that sex education is occurring whether or not we answer questions or verbalize about it. The mass media have frequently exploited sensual sex with special emphasis on erotic behavior as opposed to mature, responsible, human relationships. Children and youth have become aware of the differences between the proclaimed public morality and the private, personal mores of many adults; in itself a learning experience of great impact. We live in a more permissive world in many ways, providing a phenomena deplored by some as a "sexual revolution" of deterioration of society, and by others as a "sexual renaissance"[2] of honest questioning and personal integrity. This latter viewpoint mandates the potential inherent in education about sexuality. At the same time, the persistence and increase in venereal disease, unwed pregnancy and illegal abortion indicate that the "sex education" which permeates the environment is not constructive or even instructive in its characteristics.

"What About the Sex Sell?"

The effect of the "sex saturation scene" has not been fully studied and documented. We do not have evidence to prove that behavior is altered for "good" or "bad" by these external stimuli or by peer group attitudes and facts which 80 per cent of young persons under 20 use as their basic educational resources.[3] In the short period of time since Denmark's pornography laws have been repealed, the sale of salacious books has declined, sex crimes are reported down 27 per cent or more.

"That's human nature," tends to be the theme song of the adult community when sexual behavior is at issue—as though sexuality had a special instinctual quality, which, once liberated, cannot be controlled. Although we tend to believe that human relationships are still the products of human interaction, encompassing the elements of social, religious and ethnic backgrounds of individuals; we have been unwilling to strengthen these human understandings and interactions. We have not discovered ways which

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offer alternatives of thought to the steady beat of the biased, sensationalized "sex sell." We excel at decrying these elements; we are less than bright in providing insights into sexuality which will be meaningful to men and women in their own self-concept and their personal relationships.

Herein lies the answer to "Why sex education?"—To further the understanding of being male and female, to study sex as something we are—not something we do—to become aware of sexuality as a creative force in life and part of an individual's total health entity; to integrate sexuality as one facet of physical, emotional and social development.

Whose Education?

"Forget the kids—the adults need education."

"Forget the adults—they'll never change. Concentrate on the next generation—kindergarten through college."

"Start at college age—that's the next set of parents—or try the high-schoolers!"

"Would you believe junior high students as the most important group?"

This composite series of quotes, reflects the wide difference of opinion about where to initiate sex education, but more significantly, it reflects the divergence in motivations for providing it.

The concept of a "crash program" on the clinical facts of life is an approach which motivates proponents who believe that sexual behavior can be controlled by fear of consequences. They are not deterred by the fact that this method no longer works, and that it has often had an opposite effect, or that it ignores the possibility of individual self-understanding and decision making.

Those who propose the family or adult education approach believe that parents alone can provide sex education and that it is primarily a "question and answer" activity—If you give parents some guidance in the "right" answers the children will be fine! Only when this concept is broadened to include within the scope of adult education, a more comprehensive view of the influence of the family environment, the affectional climate into which the new baby is received, the psychosexual development of the child, will it begin to reflect the meaning of education about sexuality. Unfortunately, the motivation for this emphasis on the family learning process too often stems from a desire to discredit the need for sex education in the school setting. Conversely, those who offhandedly dismiss the family as unimportant do so to promote interest in a school program as the only answer.

The motivation most frequently espoused by medical and health workers in college settings such as this one, is that sex education will prevent such things as the pregnancy of the single college girl, the increase in venereal disease in this population, the rise in abortion, and apparent growing homosexual manifestations. As scientists we also know that knowledge alone does not change the behavior which results in these problems. Education about sexuality, to offer such promises truthfully would have to be studied for its effect over many years, using an experimental group receiving sex education and a control group receiving none—and a 20-year continuum follow-up on each group's sexual decisions. There has never been such a controlled study of significant groups of the population.

To justify sex education on any of these bases, and to designate the schools as the educational agency because no one else appears to be doing the job, is to ascribe to sex education by default.[4] This is hardly an acceptable or appropriate reason to undertake any educational task. I know of no other area of curriculum which is initiated on such rationale. The reason should be that education about sexuality is an important facet of the learning process. That it is related to an integral part of every individual's development and that it deserves the academic respectability accorded any subject matter believed to be important to over-all educational goals. Operating on this principle, sex education needs no apology. It can be incorporated into the educational process in a sequential, spiral manner extending from kindergarten through college.

Attitudes toward sexuality can be built on a background of accurate facts, combined with sensitive thoughtful dialogue between students and teacher. The best resource materials can be made available—the books, studies, research and the synthesis of knowledge from the behavioral, biological, social, theological and medical sciences. These, as contrasted to the resources currently available: schoolyard and playmates at early school years; and locker room, back seat of car and newsstand for the later years—can provide a better foundation for an evolving self-concept and fund of learning.

Such an approach will not obliterate the peer group and mass media influences, nor would we want them to do so. They are the fabric of human experience, they make our language more colorful. To them can be added another element which has never been offered or tried. Over a long period and in the conceptual framework of health and growth and development courses, or social studies, or other subject offering; the study of human sexuality can emerge as a vital learning area for boys and girls.

Who Will Answer?

Educators, physicians, nurses, sociologists, economists, ministers and parents must find the answers

to many questions as they decide to create new paths in education about sexuality.

Who will teach? How will they be prepared? Will dialogue between student and teacher be open? Will we listen to children and youth's concerns? How will we integrate such education into the normal learning process? and many more!

All across the country these questions *are* being answered. National health and education associations are recognizing the need and encouraging action.[5] In many school districts thoughtful planned curriculum materials and teacher preparation programs have been initiated.

The Sex Information Education Council of the United States (SIECUS) is a non-governmental multiprofessional organization studying human sexuality. It serves as a clearing house for innovations and research in the field.

In Kansas, the School Health Section of the Division of Maternal and Child Health of the State Department of Health has been asked to provide consultation in sex education and growth and development to over 50 school districts and to colleges and universities where exploration of programs is in progress.

Over a two-year period this division has offered four major teacher education programs on human sexuality, involving over 400 enrollees at two universities for graduate and undergraduate college credit. Numerous local workshops have also been provided on request.[6] Resolutions of the Kansas Medical Society have actively supported and encouraged these and other programs in school and college health. These are the activities known to this single department. There are, obviously, other programs developing in this one state alone of which the department is not aware.

The role of colleges and the personnel of student health centers can be crucial to the progress of education about sexuality. The known concerns of college students, their needs for the future, their ideas for the present tell us in very definite terms that they must be part of the answers to be found. Their commitment to issues of moral, social, ethical and legal consequence which are affected by human sexuality in interpersonal and international relationships is what determines the way of society into the 21st century. Their involvement is essential to the design of the teaching/learning process in education about sexuality. Your involvement can open the door to their participation.

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THANKS, FELLAS

April 15 is past and we are all poorer because of it, that is those of us who filed our federal income tax returns on time.

But we shouldn't feel too badly. Look what Uncle Sam will do with some of our money. For example, as our Rep. Larry Winn recently pointed out, it will go for many good causes.

Recently the U. S. Public Health Service interviewed some 1,500 persons in Puerto Rico and came up with a study entitled "The Demography of Happiness."

This important study showed: people in good health are happier than those who are ill. Young people are happier than old people. People who make money are happier than those who don't. People who think positively are happier than those who think negatively.

The National Science Foundation has been awarded $20,600 to study German cockroaches.

Uncle Sam has earmarked $200,000 of your money to buy tickets to Broadway plays which fail to attract large audiences. This is to be done in the interest of culture.

Also, $61,000 has been set aside to study the social life of the blackbird.

So if you have paid your federal taxes, the blackbirds, the destitute broadway producers and the German cockroaches thank you.—*Ottawa Herald,* April 16, 1968.

LSD-25—

—*Stop, Look and Question*

KENNETH E. GODFREY, M.D.,* ***Topeka***

I WAS ASKED TO SPEAK to you on the subject of LSD, I presume because you have had difficulties or are in fear of having some difficulties with some of your students in the area of the so-called hallucinatory drugs. There is concern throughout our country about these drugs and their abuse. Though a number of very responsible articles have been published in the popular press, those which deal with the subject emotionally and prejudicially seem to be the ones which get nation-wide coverage. Some of these articles have charged that varying percentages of college students take one or more of these drugs clandestinely. It seems that no one knows the true percentages of students taking these drugs on any campus. When we do not know the actual number we are driven to make estimates because human beings must have answers. Estimates tend to rise with fear and ignorance in the estimator. This weakness in the homosapien has long been known, yet we tend to be tripped by it repeatedly, especially if we do not stop, look and question.

Our positions as scientists, educators, and instructors of the university student force us to pause in order to perceive, and then we must question our perceptions intelligently. In order to be able to accomplish these things we must have a certain set of standards by which we live and judge life, as well as a certain amount of critical doubt. We must have enough knowledge of ourselves so that our emotions, ignorances and prejudices (blindness, in fact) do not cause us to make decisions too hastily or to widen the gap of communications between us and the younger generation in our colleges and universities today.

Whether we like it or not, to the younger generation we are "the establishment." And being members of the establishment we are suspect and may be seen as obstacles in their path toward success. It has always been so. Yet, we should know more about this question now than has been known in the past and be able to act accordingly.

Since World War II, we have seen the evidence and effects of the beat generation, and now the hippie philosophy is in our midst. Though there is always a tendency on the part of both the young and the middle-aged to widen the gulf of communication between themselves, each needs the other, and we, in the positions we hold, find communications most important. We must endeavor to understand and carry on conversations with these movements, by attempting to look behind what they are saying to us and the world as well as examining the very things they are saying. One thing which makes us uncomfortable is that many of the things they are saying are true. Certainly we can't stand now and very proudly present the present world to this younger generation—and they will be taking over in due time.

We tend to look at the younger generation as children. It's even made into law that we in the universities act *in-loco parentis* to the students. We should follow the law, yet we must look at the philosophy behind this law. In fact, we must look at ourselves. I'd like to quote from Kahlil Gibran's, *The Prophet,* on children, and he said, "Your children are not your children. They are the sons and daughters of life's longing for itself. They come through you but not from you, and though they are with you, yet they belong not to you. You may give them your love but not your thoughts, for they have their own thoughts. You may house their bodies but not their souls, for their souls dwell in the house of tomorrow, which you cannot visit, not even in your dreams. You may strive to be like them but seek not to make them like you. For life goes not backward nor tarries with yesterday. You are the bows from which your children as living arrows are sent forth. The Archer sees the mark upon the path of the infinite, and he bends you with His might that His arrows may go swift and far. Let your bending in the Archer's hands be for gladness; for even as He loves the arrow that flies so He also loves the bow that is stable."

The lack of communication between our generation and the adolescent today is a great deal wider than it has been in the past. Reasons for this lack can be laid to several areas: The speed up in society; social and technological revolution; an uncertain lengthening of the adolescent period in our society; and I'm sure the youngsters would ascribe the gap to our loss of adherence to the ideals they hold so

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Presented at the Central College Health Association meeting, Washburn University, Topeka, March 14-16, 1968.

dear. They can easily point out, and do, many discrepancies between what we say and what we do. This makes us uncomfortable. Because of this discomfort we tend to retreat to a more authoritarian and ridiculous position. Here our emotions tend to take charge of our intellect and we make even more mistakes, thereby further alienating our younger generation. Therefore we should not say of LSD, "stop, look and question," without first dealing with ourselves in the same way. This is not easy nor is it immediately fruitful except on some rare occasions when we can feel secure enough within ourselves to honestly voice our own indecisions to ourselves and to the younger generation.

One subject that is of interest to most everyone in this country and that which draws so much attention and notoriety is LSD. This problem has seemed to attack us in our time of weakness and interest in other "more confounding problems." Again we tend to let our emotions take over so that we rather accept, without prior questioning, the rumors and so-called news blasted at us from all areas of the public media. The three letters, LSD, have sold more newspapers and magazines than almost anything else in recent years, and it has become notorious but definitely sought after by most adolescents and adults. Book publishers now say that only three subjects will sell for profit, those subjects are sex, Vietnam and LSD. Magazines buy and print articles on LSD that, had they been written on any other subject, would not have passed the first assistant editor's desk.

There are a few sources to which one can go for almost unbiased information on this subject. The most recent and authoritative would be the book published by Bobbs-Merrill in 1967, *The Use of LSD in Psychotherapy and Alcoholism,* edited by Abramson. One also finds some good articles in scientific journals; however, the scientific journals have not been immune to the temptation to print unscientific articles about LSD so that the journal will be noticed and read. Our teenagers have read all these articles, most of the books on the subject, and we are told a number of them have experimented with the compound.

We are quite frightened at the evidence of psychotic reactions, especially among teenagers on both coasts. There is great danger in the illicit use of this drug; only those not quite in touch with reality will say otherwise. The danger is not only psychological, but secondarily physical as well. However, the physical danger is generally in the area of misinterpretation of the psychological experience. For instance, the young lady under the influence of LSD who felt that she could walk through an open window of a 10th floor apartment and slowly float to the ground, or that person so enthralled by the beautiful multicolored headlights of an approaching automobile so as to walk in front of it. Again, few questions the danger of this drug when in irresponsible hands for a purpose other than working toward the betterment of an emotionally afflicted individual. But there are hundreds of papers attesting to benefit from its use as an adjunct to psychotherapy.

To be able to know anything thoroughly one must examine that subject from all sides. We must realize the danger of this drug and also its probable capacity as a usable tool in the hands of a responsible and well trained psychiatrist. Here I would like to recommend for your reading two articles from *Medical Opinion and Review,* September 1967, "Something's Happening" by Joseph Downing, M.D., and "Culture's Impact on Adolescence" by Irvin Markowitz, M.D. If you are unfamiliar with the books of suggested reading by Dr. Downing you might be able to catch up pretty quickly. I will quote from his article, "So many parents have values of social prestige and high grades rather than beauty and laughter. As our standards of living have gone up, our standards of loving have gone down. Although I am concerned about the way drugs are being used, I am less worried about the young people who are using these drugs than I am worried about us, about the example we are setting, our distance from the young people, our refusal to look at and talk about the truth of our society in ourselves. They are looking; and they use LSD and similar drugs in the hope of looking more closely." We can help bridge this gap in communication between ourselves and the younger generation by retaining our integrity, by not only looking at ourselves but in listening, to look, to truly attempt to understand what our younger generation is saying. We should be able to hold our own composure when we perceive that our advice and truly empathetic approaches are not immediately accepted by the younger or our own generation. For any process to work takes time and we can wait. We should use our education to objectively observe, study, and critically question the so-called news from all kinds of media. Even some of our best scientific magazines have been fooled and have published articles that were far from scientific because they didn't question the article closely enough. Many of us have been guilty of accepting without question the conclusions of the author of such an article and repeating what he has concluded as a proven fact no matter how unscientific the article. We are old enough, wise enough, and intelligent enough to know that the truth is arrived at through process. That process we call scientific study. And all of us in this day must be scientists whether we are house-

(Continued on page 420)

Alcoholism—Prevention

Alcohol Education as Preventive Medicine

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HISTORICALLY, ALCOHOL EDUCATION in this country may be very closely related to the development of the several temperance movements. Early ventures of this sort met with varying degrees of enthusiastic reception—to say the least—and the best that could be said for most of them was that they were unenforceable, unrealistic, moralistic and short-lived. In the word association test, "temperance" might be too quickly (and incompletely) answered with "Carry Nation." However, a complete review of all temperance activity, which may well have been started by gossip concerning the manner in which certain disembarking Pilgrims negotiated their landing on Plymouth Rock, up until the issues of the present day, places Carry somewhat in the position of a "Johnny-Come-Lately."

It is very true, however that Mrs. Nation hacked—in more ways than one—some pretty formidable variations on what was by then—(the late 1800's) a pretty old theme. Problems related to alcohol and its consumption developed as this country developed; they were a carry-over from problems which had been present in the home-lands of the immigrants and had been both present and recognized in virtually all preceeding cultures and civilizations. And in many of these, temperance, if not total abstinence, had been on the court agenda from time to time. In what order Carry Nation made her appearance is not important. Today's discussion will be basically along the lines of alcohol education at the scholastic level; something of the past developments in that field; some recommendations and a look at the problems as they appear to exist in the current education environment—and in the education area Carry was definitely a "front runner."

A recent biography of Carry Nation† (*Vessel of Wrath* by Robert Lewis Taylor) provides an insight into the lady's background and own development into an internationally known social force of almost cyclonic dedication. In the course of this development she played a magnificient role in what is our topic today—alcohol education in the United States, and particularly Kansas.

The founding of the Women's Christian Temperance Union in 1874 (and Carry's virtually single and high handed administration of its affairs in Kansas from that time on) had as one of its objectives the passing of legislation by all states. This legislation required instruction on the nature and effects of alcoholic drinks and narcotics as part of physiology and hygiene courses—thus forming the basis of health education in schools as seen today. All of the states had passed such legislation by 1902. Of course, Carry didn't always confine her activities to liquor and drugs—her memory is chiefly underlined by the violence of her attacks in the area of suppressing booze. A closer examination reveals that without a firmly established priority system, she also had definite opinions on tobacco, sex, politics, government (national, state and local), the Masonic Lodge, William McKinley, Theodore Roosevelt and William Jennings Bryan. But again, she made her best pitch against Demon Rum and this leads us back into this particular arena.

While Carry personally directed the Kansas expeditionary forces of the WCTU she drew on National Headquarters occasionally for support in her crusades. It was there that Francis E. Willard preempted the leadership in efforts directed toward educating the educators, harassing the legislators and forcing the assemblies of each state to enact "scientific instruction laws" compelling public schools to include courses laying out the horrors of drink. While all of these laws have since been repealed, the fact that they were enacted at all should give us an insight into the drive and dedication of the early protagonists.

As a non-native Kansan I cannot comment on the approach nor the effectiveness of WCTU-sponsored alcohol education in this state. My own initial contacts in this area were highlighted by events and customs which many of us associate with the prohibition era—and this could hardly be qualified as

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† Biog. Note: Born: Carry Moore, 11/25/1846, Gerrand County, Kentucky; Died 6/2/11 (64); Buried Belton, Missouri. Married Dr. Charles Gloyd (Career: Drunk), 11/1867 (21); Gloyd died approximately six months later. Married David A. Nation (1877) (31) (Editor, Attorney, Minister); Divorced 11/27/01.

education. The public—including the educators—had been lulled into the belief that legislation had solved all the problems; that Rep. Andrew J. Volstead, the father of the Prohibition Enforcement Act (Passed, 1919; Repealed, 1933) would see to it that we could all sleep safely in our beds, secure in the knowledge that John Barleycorn was nailed up tight in his coffin.

Subsequent events did not bear this out. Prohibition not only did not solve any problems, it created complete galaxies of new ones—and new star gazers to match. The increasingly permissive society which was (or is) a direct by-product of this era immediately plunged headlong into a swamp of civic, social, economic and medical situations with which it could not cope. Some of these situations are still with us today. This is not to imply that Mr. Volstead and his blue-nosed brethern were solely responsible for this spin-off; they did, however, help precipitate matters.

To evaluate the impact of Prohibition coupled with its failure and subsequent repeal, the Rockefeller Foundation requested and financed a survey of social conditions in 1933. This had a great deal of influence in shaping new legislation in several states with resultant realistic approaches to alcohol-related problems. Among its findings were several strengthening growing beliefs that many of the answers lay in education rather than legislation. Critical comment was made of previously utilized "fear techniques" in teaching: there were reports of distorted presentation of material to support a particular view and of untruthful or biased factual development.

The establishment of the Yale Center of Alcohol Studies in 1940 is considered by many to be the first significant mile-post in the development of formalized and standardized alcohol education in this country. With the transfer of function to Rutgers in 1962, and with both interim and later establishment of other study centers—all aided in part by public or private funding—educational efforts have expanded materially. Many universities have added course work in this field; treatment facilities have concurrently included programs for trainees—both lay and professional; information centers have opened their doors and as of today virtually all state programs related to alcohol emphasize education both as a "part of treatment and as an integrated service," to the community levels.

This growth has resulted in today's more objective approach to all areas of endeavor. Moralistic aspects have been replaced with documented, factual bodies of knowledge achieved through formalized research. Changes in state and federal legislation have occurred. There has been expansion of services and facilities directed toward treatment and rehabilitation of patients with the disease of alcoholism.

There will be more growth. Hopefully this will be well balanced growth. Today the apparent emphasis is on treatment. Techniques are continually being perfected and refined and the results—while not earth-shaking—do indicate that current beliefs, in particular that alcoholism is a treatable disease, are entirely correct.

One significant gap remains. Alcohol education—particularly at the scholastic level—has not kept up with parallel efforts in overall program development. Examining all of the reasons why education has not kept pace is not particularly appropriate at this time. The mention of a few is necessary, however, to indicate lines along which remedies may be effected.

The use of alcoholic beverages, the treatment—indeed, the acceptance or rejection—of the alcoholic patient and the whole subject of alcoholism have too long been regarded as highly controversial subjects. This does not pertain solely to the educational area but, until very recently, straight across the board. Perhaps the educator's reluctance to deal with the problem is a traditional reluctance to enter controversial discussions. This may be, in part, due to lack of exposure to information about alcohol problems during professional training. In either instance, teaching this subject should only be entrusted to an especially mature person who has satisfactorily resolved his own feelings and attitudes toward the use of alcoholic beverages.

It follows naturally that a competent educator must not advocate a polar position of either "wet" or "dry"; must impart information which is accurate, up-to-date and scientifically sound, and must assist students in making judgments and decisions.

In so approaching this subject matter, a competent educator must be aware of four broad objectives. It should be his responsibility to:

1. Present young people with the opportunity to analyze without bias the role of alcoholic beverages in our society.
2. Assist young people in examining and clarifying their own feelings and attitudes about the use of alcohol, in view of diverse public attitudes and practices regarding drinking.
3. Interpret alcoholism as a disease for which society has a responsibility.
4. Develop through the school, constructive community attitudes toward alcohol so that some of the related social problems may—in time—receive adequate attention and resolution.

Recent studies give us something of an insight as to student practices and attitudes. Contrary to the

thinking of many, there is very little alcoholism *per se* in undergraduate student bodies. Generally speaking, collegiate or sub-collegiate drinking has a very high degree of "visability"; however, except in isolated instances—alcoholism simply has not had sufficient time to develop. Furthermore, student drinking practices are governed by such factors as lack of funds, lack of opportunity, and social censure—among others.

Occasional or frequent drinking among the student body is quite important in one context which should never be ignored any more than an examination of why students drink. Heavy drinking is initially examined because of its relationship to the prodromal stages of alcoholism, in other words, which direction will this action continue—if it does continue? Heavy drinking has been considered a part of a passing phenomenon—a part of the "acting out" and "testing" behavior by some and in this context a bad hangover may be a therapeutic experience. To sum it up briefly, due in part to heavy social connotations —student-involved "alcohol problems" are predominately disciplinary rather than medical problems. It might be stated at this time, parenthetically, while studies relative to on-campus alcoholism among the student bodies indicate a low incidence, a concurrent study underlines a belief that this low incidence does not necessarily also apply to the faculty members.

Why students drink has interested various research teams who have and will continue to develop material and theories. These reasons are of course many, fluctuating, and somewhat overlapping. Stating a few: we have "The Lost Ones" usually a minority group, the pseudo-intellectual fringe; some drink to achieve status or due to peer pressure; some in rebellious relief from a strict home environment. Again, we have those who are experimenting and those who are seeking escape from the mounting pressures of academic demands. There are many other reasons—none of which should be ignored, but which deserve intelligent evaluation.

At this point it is appropriate to define some of the terms which have appeared earlier. While "problem drinking" may safely be described as "drinking for other than socially accepted reasons"—which, frankly, is rather loose in both its implications and applications, the terms "alcoholism" and "alcoholic" deserve better treatment. Several of the recognized disciplines, with the possible exception of Alcoholics Anonymous, have some firm ideas on this. However, in the opinion of the Division of Institutional Management, those which have been published by the World Health Organization Expert Committee on Mental Health are the most universally acceptable. They read as follows:

Alcoholism: Is a chronic disease manifested by repeated implicative drinking so as to cause injury to the drinker's health or to his social or economic functioning.

Alcoholic: Those excessive drinkers whose dependence on alcohol has attained such a degree that it shows as a noticeable mental disturbance or an interference with their bodily and mental health, interpersonal relations and their smooth social and economic functioning.

Essential characteristics of the above:

1. Compulsive, uncontrollable drinking
2. Chronicity
3. Invariable intoxication
4. Injury to functioning

In the event that the foregoing appears to place an additional burden on the professional educator and profuse apologies are not sufficient, it should be pointed out that we're not exactly dealing with the common cold. Carefully compiled statistics place alcoholism as the third-ranking cause of death in this country—right behind cancer and heart disease.

Coordinated campaigns have made major alterations in the "win-loss column" in recent years in the case of the two front runners. Education continues to serve in co-partnership with the other professions in these campaigns. Education—intelligent, well balanced, vitally concerned education as a full partner in coordinated campaigns directed toward the alleviation of the disease of alcoholism may be only part of the answer we are seeking. However, without education only the visible portion of the iceberg is being treated. Education—and education alone—can fill the role of preventive medicine.

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wives, history professors, college administrators, nuclear-physicists or astrologists.

We recognize a gap in communication as well as the many difficulties that gap produces. Yet we can do something about it and it is time that we stop, look and question, and then communicate.

Medico-Legal Problems

Medico-Legal Aspects of the Student Health Service

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THE LEGAL PROBLEMS of the institutional health service are similar to those that arise in the ordinary doctor-patient relationship. In fact, a general discussion of the legal aspects of private practice would be a most pertinent topic for discussion by the institutional health personnel. However, it is admitted that this general picture can be complicated by the injection of the school as the third entity in what is normally a dual relationship.

The Immunity Doctrine

Any treatment of the college or university student health center necessarily includes a brief preliminary discussion of charitable and governmental immunities.

Many of our private colleges and universities are so organized and conducted as to acquire the status of a charitable institution, as that term is used in its legal sense. Whether or not an institution of learning is charitable depends on whether it is carried on for public benefit or for private gain. Thus, an educational institution which is established and supported by private charity, and is not operated for the purpose of gain, but in the interest of humanity is, generally, a charitable institution. Moreover, the charitable character of an educational institution is not destroyed by the mere fact that it charges tuition. The controlling purpose must be the common and public benefit.[1] Hence, the determination of the liability of a privately established and operated college or university involves, first of all, the question whether a "charitable institution" is immune from tort liability. Simply stated, in a jurisdiction which recognizes the doctrine of charitable immunity, a charitable and nonprofit organization is immune from liability for the negligence of its employees. Some courts have justified this freedom from liability on the ground that trust funds created for benevolent purposes should not be diverted therefrom to pay damages arising from the torts of employees. Another reason for the rule is that public policy encourages the support and maintenance of charitable institutions and protects their funds from the maw of litigation.

It should be noted that the doctrine which holds charitable institutions immune from tort liability is quickly being cast aside. See e.g. *Noel v. Menninger,*[2] where the Kansas Supreme Court overturned a substantial body of case law and concluded that the need no longer exists for the application of the immunity doctrine to the functions of a private charitable institution. The court held that charitable institutions are liable for the torts of their servants from which injury results to a third person, and thereby reversed a long line of cases which adopted the doctrine of charitable immunity.

Assuming that the doctrine of charitable immunity is recognized, the question may arise: Does this immunity extend to the agents and employees of the charitable institutions? Generally, the immunity extended the charitable institution does not shield the agents and employees of such institution from tort liability and they may be held liable for their negligent acts.[3]

The status of the charitable immunity doctrine depends on the law of the particular state, and the above discussion is not intended to reflect the law in every state.

In the case of a state college or university there is no liability for injuries arising from torts occurring as a result of governmental activity, and the maintenance of an infirmary, student health center or hospital in a college or university has been held a governmental function.[4] Similarly, it has been consistently held that a municipality is not liable for the negligent acts of its officers or employees when acting in the performance of its governmental functions absent a statute expressly imposing liability.[5] The rule is based upon the doctrine that "the state is not liable except as made so by statute, and that municipalities, as an agent of the sovereign, when acting in a governmental capacity, are arms of the state and likewise not liable."[6]

Again, however, the cloak of immunity does not extend to the negligent employee, as an individual, so as to shield him from answering for his negligent

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or wrongful act by which another has suffered injury.[7]

Consent

The physician's liability is generally predicated upon his negligence; i.e. his failure to exercise the requisite degree of skill and care. However, a physician may be held answerable in some instances where he is free from personal negligence, as, for example, where he treats a patient without the latter's consent, or where the treatment is beyond the scope of the consent actually given.

Technically speaking, the intentional touching of another's person without consent or authorization is a legal battery, and civil liability may be imposed. ("The interest in freedom from intentional and unpermitted contacts with the plaintiff's person is protected by an action for the tort commonly called battery."[8]) Since medical treatment necessarily involves the touching of the patient's person, his authorization or "consent" to such treatment must be obtained in order to avoid liability for a legal battery. Familiarity with some basic legal principles concerning consent is therefore necessary.

The physician-patient relationship is a consensual one, and generally, in the absence of an emergency, a physician must first obtain the patient's consent, providing, of course, he is competent to give it, before treatment can begin.[9] A person has the right to be secure in his person from any intentional touching and he is therefore free to reject medical treatment even though such treatment is deemed necessary by his doctors for the preservation of his life or health.[10]

As a legal concept, what does the term "consent" mean? Basically, "consent" means informed consent. That is, an authorization from the patient without a full understanding of the nature and extent of the medical treatment contemplated is not an effective or informed consent.[11] It is therefore necessary that the patient be informed as to what he is consenting to so that his consent will be effective.

How may consent be proven? Generally, proof of a patient's consent may be shown by testimony of his oral assent or by the introduction of the patient's signed statement evidencing his express consent to medical treatment. Certainly, the latter is more effective.

What should the written consent contain? The written consent should include a description of the medical treatment or procedure, the risks and consequences, and the signature of the patient or someone who has authority to consent in his behalf.

Hospitals have long recognized this need for consent. However, many hospitals have utilized consent forms which have been so general as to permit the physician to perform any medical procedure or treatment which he might deem best. It is suggested that such a general consent form is dangerous and should not be used. Though it may be clear that the patient has consented to some form of treatment, it is not clear what the exact nature of that procedure or treatment might be. A Louisiana case[12] emphasizes the insufficiency of the general consent form. In that case, an action was brought against the physician by a, to say the least, dissatisfied patient who alleged that she had submitted to an appendectomy and her reproductive organs were removed. The physician attempted to show that his patient had consented to the operation by introducing a consent form which provided: "I hereby authorize the physician . . . to administer such treatment . . . as found necessary to perform this operation which is advisable in the treatment of this patient." The court held that this authorization was so ambiguous as to be almost completely worthless and "since it fails to designate the nature of the operation authorized, and for which consent was given, it can have no possible weight under the factual circumstances of the instant case."

The Kansas case of *Natanson v. Kline*[13] is also indicative of a need for a specific consent:

> In our opinion the proper rules of law to determine whether a patient has given an intelligent consent to a proposed form of treatment . . . compels disclosure by the physician in order to insure that an informed consent of the patient is obtained. (at p. 405)

The cases indicate that in some instances consent may be implied or presumed.[14] Thus, a patient may voluntarily submit to medical treatment, relying entirely upon the physician's skill to decide for him what shall be done with knowledge gained from the surrounding circumstances. In such case, the patient's consent may be implied.[15] That is, if the patient apparently understands the nature of the medical treatment or procedure then his voluntary submission may be sufficient to constitute implied consent.

Perhaps one of the biggest difficulties to be encountered in the student health center or university hospital involves the question of whether a minor has the legal capacity to consent to medical treatment. Generally, the consent of a minor is ineffective and the physician must secure the consent of his or her parent, or someone standing *in loco parentis*.[16]

Some courts have adopted a 21 years of age theory, whereby it is held that the consent of a minor, under 21 years of age, is ineffective *(Bonner v. Moran; Zoski v. Gaines*[16]*)*. Other courts apply a less strict standard and in determining whether the consent is effective will consider age, maturity, nature of the treatment and benefit to the minor, and ability to

understand and appreciate the contemplated medical treatment.[17] However, it would seem to be a matter of sound discretion and caution for a physician to first obtain the parents' consent before treating a minor.

In determining whether a patient has the capacity to consent to medical treatment, the state statutes should be consulted. For example; Kansas provides that the period of minority extends to the age of 21 in both males and females.[18] However, the legislature has also provided that every person 18 years of age, who is or has been married, shall be considered to have attained his majority with respect to contracts, property rights and liabilities, and the capacity to sue and be sued.[18] In addition, Kansas has specifically provided that a minor parent, whether married or unmarried, may consent to medical treatment for his or her child and that an unmarried, pregnant minor may consent to medical care relating to her pregnancy, where no parent or guardian is available.[19]

The general rule that consent must first be obtained is qualified in cases of emergency; i.e. where immediate action is found necessary for the preservation of life or health of the patient.[20]

What is an "emergency"? In defining the concept of emergency, the courts generally speak in terms of threat to life or health. Some courts, however, have enlarged upon his interpretation and have stated that the physician is also confronted with an emergency when suffering or pain may be alleviated, and immediate treatment is necessary.[21]

Standard of Care

It was once said:

> If the surgeon has made a deep incision in (the body of) a (free) man with a lancet of bronze and causes the man's death or has opened the carbuncle in (the eye of) a man and so destroys the man's eye, they shall cut off his fore-hand.

The physician, and his assistant or nurse, have a duty to use reasonable care, skill and diligence, and a liability for negligence of malpractice is imposed for a breach of this duty.[22] The services rendered by a physician or his nurse in the college or university health center might, under certain circumstances, be considered gratuitous. However, the duty of reasonable care is required even though the treatment is gratuitous *(Voss v. Bridwell;*[7] *Rule v. Cheesman*[23]*).*

The law requires that a physician who undertakes to treat a patient possess that degree of skill which is ordinarily possessed and exercised by members of his profession who practice in the same or similar locality. Generally, the mere fact that a physician makes an incorrect diagnosis is no basis for a malpractice action. The patient has the burden of proof to show that the diagnosis was incorrect and also that the incorrect diagnosis was the result of the physician's negligence.[24]

Failure of a physician to take x-rays of a fractured limb or other internal injury, or to have them taken, before he commences treatment, may be held to constitute negligence.[25] In determining whether the failure to x-ray is negligence, the question is: Would a physician of ordinary skill in that community or locality have taken an x-ray to discover the fracture or other injury, under the same or similar circumstances.[24, 26] This is a medical question and as such must be answered by the expert witnesses. This, in *James v. Grigsby,*[26] where the medical evidence indicated that the x-ray had been used so long and so generally in diagnosing fractures or bone conditions, the Kansas Supreme Court held that x-rays "should be used as a matter of course when available, and not to use it under such circumstances is negligence." (Supra at p. 63.)

However, the failure to take x-rays of a fractured limb may not constitute negligence in all cases.[27] Thus, where a patient went to a physician for an examination and treatment for injuries and complained of pains in her shoulder, the front portion of her chest and hip, and the only visible signs of injury were bruises on her hip and a small bump on her shoulder, the physician was not held negligent in failing to have x-rays taken of the patient's back.

Contagious Diseases

If a student, seeking medical treatment, is discovered to have contracted tuberculosis, or other contagious disease, what is the duty of the physician? Most states, either by statute or a state board of health regulation, require the physician to report any communicable disease. For example, K.S.A. 65-117 provides:

> When any physician shall know or have reason to believe that any person whom he has been called to visit, or any person sick within his knowledge without the care of a physician, is sick with or has died of any infectious, contagious or communicable disease, he shall immediately give notice thereof to the board of health or health officer having jurisdiction over the area.

It is further provided that any person violating this statute, shall be, upon conviction, "fined not less than twenty-five dollars nor more than one-hundred dollars for each offense."[28]

K.S.A. 65-128 empowers the State Board of Health to provide regulations for the reporting of communicable disease. Pursuant thereto, the State Board of Health has provided that all diseases which are designated as being reportable under the regulations (Kansas Administrative Regulations, Board of Health,

28-1-2) shall be reported by all physicians and other persons having knowledge of such diseases to the local health officer within 24 hours, by mail, telephone, telegraph or in person. In addition, the State Board of Health Regulations provide that communicable diseases are reportable and the specific control measures which should be taken as regards certain specified diseases. Therefore, it is recommended that these regulations be consulted.

In addition to the above regulatory measure provided for by statute, it is generally the duty of a physician who is attending a patient afflicted with a communicable disease to give notice to members of the family or other persons, known by the physicians to be in dangerous proximity to such patient, of the existence and nature of the disease, to avoid doing any act which would tend to spread the disease, and take necessary measures to prevent its spread.[29]

Physician's Liability for the Negligence of Others

It may be stated as a general proposition of law that a physician must exercise due care in selecting his servants, such as nurses, and on the simplest principles of agency a physician may be held liable for the negligence of his nurse, or other assistant, who is working under his direction.[13] A "servant," as that term is used in its legal sense, is defined as a person employed by a master to perform service in his affairs whose physical conduct in the performance of that service is controlled or is subject to the right of control by the master.[30] Thus, in determining whether a person is the servant of another, it is necessary that "he not only be subject to the latter's control or right of control with regard to the work to be done and the manner of performing it, but that this work is to be performed on the business of the master or for his benefit."[13]

Physicians, like other persons, are subject to the doctrine of *respondeat superior* and this doctrine applies whether the person administering treatment, or assisting therein, be a layman, a physician, or a nurse.[13] In each case the question is: Did the physician have an actual or potential right to control his nurse or other assistant? If the answer is in the affirmative, the physician must generally respond in damages for the negligence of such other person. Thus, in the absence of any relation of agency, a physician is not liable for the negligence of other physicians or nurses left in charge of a patient. The rule may be summarized as follows:

> A physician is not liable for the negligence of hospital or other nurses, attendants, or internes, who are not his employee, if he has no knowledge thereof, or has no connection therewith, or if it is not discoverable by him in the exercise of ordinary care, or unless he is negligent in permitting them to attend the patient. . . . The mere fact that a physician or surgeon gives instruction to a hospital employee does not render the physician or surgeon liable for negligence of the hospital employee in carrying out the instructions.[31]

In most instances, the student health nurse is hired by the college or university and is therefore, at least technically, the servant of such college or university, and not the servant of the physician. However, a nurse may be temporarily detached from the university's control so as to become a temporary servant of the physician she assists. In such case, where the nurse is subject to the physician's control, the latter may be subject to liability for the nurse's negligence. Thus, where a hospital nurse, although not in the regular employ of a physician, is under his special supervision and control during the operation or treatment, the legal relationship of master-servant exists, and the physician is liable for the nurse's negligence under the doctrine of *respondeat superior*.[31]

Functions of the Student Health Nurse

Now, the question arises: What is nursing, and what is a nurse authorized to do? Nursing has been defined, in rather general terms, as "aid rendered in sickness."[32] However, as can be readily seen, this definition lends very little assistance in outlining the scope of a nurse's authority. The problem of defining nursing, in terms of legal authority, has been a difficult and continuing one over the years. Many states have sought, through statutory enactments, to solve this problem. For example, Kansas has statutorily defined "the practice of nursing," and in doing so has differentiated the practice of professional nursing and practical nursing. K.S.A. 65-1113 provides that the practice of professional nursing means:

1. The observation, care, and counsel of the ill, injured or infirm.
2. The maintenance of health or prevention of illness of others.
3. The supervision and teaching of other personnel.
4. The administration of medications and treatments as prescribed by a licensed physician or dentist, requiring "substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical, and social sciences."

The practice of practical nursing, on the other hand, means:

1. The care of the ill, injured or infirm under orders prescribed by a licensed physician or dentist, or
2. Directions issued by a registered professional nurse.
3. The knowledge required of a practical nurse is that of "simple nursing procedures."[33]

It will be observed that the statutory definitions are quite broad and really do not answer our original question. It would seem, however, that as long as a nurse's functions fit within the statutory definition, she is engaged in the practice of nursing.

Bernice E. Anderson and Milton J. Lesnick, in their book, *Nursing Practice and the Law* (2nd Edition, J. B. Lippincott Co., 1962), have indicated that there are two basic categories of nursing functions. The first relates to those functions which may be performed independent of medical orders. These "independent functions" include:

1. Supervision of the patient.
2. Observation of symptoms and reactions.
3. Recording and reporting.
4. Supervision and direction of practical nurses and others.
5. Application and performance of nursing procedures, including routine assistance to patients.
6. Health direction, including educational, social, and psychological services.

Of these six functions, perhaps the most controversial is that pertaining to the observation of symptoms and reactions. The apparent reason for this controversy is that the observation of symptoms necessarily includes, to some extent, diagnosis, a function which has historically been considered the practice of medicine. It cannot be denied, however, that the professional nurse possesses the knowledge to interpret observations and to exercise a professional judgment based upon an evaluation of these observations. However, just what course of action the nurse takes presents the point in controversy.

Lesnick and Anderson suggest that "the responsibility to exercise judgment and to observe symptoms and reactions is not limited to the execution of medical orders. . . ." (Supra at p. 266.) What limitations, then, are placed on the nurse's functions of observation and diagnosis? Kansas statute provides an answer. K.S.A. 65-1113 provides that the practice of professional nursing does not include "diagnosis or prescription of therapeutic or corrective measures." Therefore, to the extent that a nurse's observations and diagnosis involve the prescription of treatment, she is precluded.

The second category involves those functions which involve the administration of medications and therapeutic treatments. Such functions are properly considered the practice of medicine and as such denied to nurses in the absence of an order or direction by a licensed physician. Lesnick and Anderson refer to such medical acts as involving a "dependent function"; that is, dependent upon a legal order of a licensed physician.

It has been brought to the attention of the writers that many orders or directions of a licensed physician are voice or verbal orders. As to some functions these verbal orders are certainly valid. However, orders involving drugs and narcotics prescribed under the various narcotics control laws are invariably required to be in writing. Lesnick and Anderson state that: "Prevailing practice to the contrary, the execution of such orders is illegal unless they are pursuant to written directions." (Supra at p. 281.)

Despite the validity of verbal orders under certain circumstances, their extensive use is not recommended, especially from the standpoint of the nurse. Nurses realize that under most circumstances they are responsible for their own acts, and would therefore cherish with devoted reverence the written order of a physician.

Assuming that most physicians, employed by a college or university, render professional services in a part-time capacity, further complications arise. For example, in the absence of a physician, what can or should a nurse be authorized to do? This is especially important with respect to the administration and dispensation of medication and drugs. Apparently, most nurses, in the absence of a physician, refuse, and rightly so, to prescribe and dispense drugs to students, with the possible exception of aspirin. Some nurses, however, even refuse to hand out aspirin in the absence of a physician's order.

Certain problems encountered by the nurse are common and can therefore be anticipated. Suppose, for example, that a girl enters the health center with cramps, or a student says that he is to receive a certain medication so many times a day: What should the nurse do? Standing orders of a physician could possibly be a solution, especially with respect to common and anticipated situations. The difficulty with standing orders, however, is that they presuppose, to some extent at least, direction for the execution of medical acts, considered to be the practice of medicine. Although there is no judicial or statutory policy, Lesnick and Anderson suggest that to the extent standing orders constitute directions for situations *already diagnosed,* they are valid. However, to the extent such orders provide for positive treatment of cases *to be* diagnosed, they are invalid in that this involves a delegation of authority to diagnose and prescribe treatment. Hence, a standing order for the treatment of a sore throat, cold, headache, or other common malady, would seem to be a wrongful delegation of authority.

Although the use of standing orders certainly seems limited, they are justified under certain circumstances. This is especially true in the case of an emergency. An "emergency" has been defined as "a

sudden unexpected happening; an unforeseen occurrence or condition; . . . a sudden or unexpected occasion for action."[34] Thus where emergency treatment seems reasonably necessary for the preservation of life and health, standing orders for such an occurrence seem fully justified. In addition, first-aid treatment by the nurse to relieve pain or stop bleeding is also warranted. Thus, in anticipation of possible emergencies, standing orders, signed by a physician, are justified and indeed recommended. Such orders might validly provide for action to stop excessive bleeding, to prevent shock and infection, and to relieve excessive pain.

Abandonment of the Physician-Patient Relationship

Suppose a student seeks medical treatment, is treated, and leaves: is the physician-patient relationship terminated? This will, of course, depend upon the circumstances. However, the relation of physician and patient will continue until terminated, and, generally, the physician cannot discharge himself from a case and relieve himself from liability from it by simply abandoning it or staying away without notice to the patient.[35] In other words, the relation of the physician and patient, once initiated, continues until it is terminated by the consent of the parties, by dismissal of the physician, or until services are no longer necessary or needed.

Further, the failure of the patient to pay for the physician's services does not justify the physician's abandonment of the patient while he is still in need of medical services or treatment.[36]

In addition, it is the duty of the physician, upon completion of treatment, to give the patient instructions with respect to future treatment if the ailment is not at this time completely cured.[37] This also includes the duty of advising persons, such as parents, having the care of the patient as to the nature of the services and duties they are to perform.

Appendix "A"

NON-GOVERNMENTAL PRIVATE COLLEGES AND UNIVERSITIES

A. *Definition*
Those offering educational facilities to the public generally, but offered and conducted by private individuals.

B. *Basis for determining the tort liability of a non-governmental private college or university*
Many of the private educational institutions in this country are so formed or conducted as to acquire the status of a charitable institution, as that term is used in its legal sense. Because private colleges and universities are charitable in their nature, the determination of the tort liability of a privately established and operated college or university involves, first of all, the question whether, in the particular jurisdiction, a "charitable institution" is immune, partially immune or not at all immune, from tort liability.

Whether a school or college is entitled to the status of a charity is a question that would ordinarily be determinable upon the facts of each individual case. Some generalities may be stated:

1. A public charity is not necessarily confined to institutions which confine their gifts or assistance to the poor and needy. One of the earliest forms of public charity known to the law was that of a school and college. *Parks v. Northwestern University,* 218 Ill. 381, 75 N.E. 991 (1905).
2. In order for a college to be a public charity, for the purpose of ascertaining its immunity from tort liability, the controlling purpose must be for the common and public benefit. Where it was created or thereafter maintained for money-making, this essential element is lacking. *Hall v. College of Physicians & Surgeons,* 254 Mass. 95, 149 N.E. 675 (1925).
3. It is clear that a corporation is to be deemed charitable where its property is derived from charitable gifts or bequests and is administered, not for the purpose of gain, but in the interest of humanity, and an educational institution, established and endowed by private charity, falls clearly within the classification. *Ettlinger v. Randolph-Macon College,* 31 F.2d 869 (4th Cit. 1929).
4. The fact that a school or college otherwise formed or conducted as a charitable institution requires its students to pay tuition, or tuition and room and board, has been held not to deprive the institution of its charitable character. *St. Mary's Academy v. Solomon.* 77 Colo. 463, 238 Pac. 22 (1925).

So far as this question of the tort immunity of charitable institution is concerned, the authorities have generally approached this problem from the viewpoint of charitable institutions generally, rather than from the viewpoint of any particular kind of charitable institution, such as a college or university. Any treatment of the question of the tort liability of private schools must therefore include a discussion of the doctrine of charitable immunity.

C. *The doctrine of charitable immunity*
Under the doctrine of charitable immunity a charitable and non-profit organization is immune from liability for the negligence of its employees. The courts have felt that trust funds created for benevolent purposes should not be diverted therefrom to pay damages arising from the torts of servants. Another reason for the rule is that public policy encourages the support and main-

tenance of charitable institutions and protects their funds from the law of litigation.

D. *Status of charitable immunity doctrine in Kansas, Missouri, Nebraska, Iowa, Oklahoma, and Colorado*

1. Kansas

In the now-famous decision of *Noel v. Menninger Foundation,* 175 Kan. 751 (1954), the Kansas Supreme Court overturned a substantial body of case law and concluded that the need no longer exists for the application of the immunity doctrine to the functions of a private charitable institution. The court held that charitable institutions are liable for the torts of their servants from which injury results to a third person, and thereby reversed a long line of cases which adopted the doctrine of charitable immunity.

2. Missouri

The doctrine of charitable immunity is clearly established in Missouri. The court, in *Schulte v. Missionaires of La Salette Corp. of Missouri,* 352 S.W. 2d 636 (1961), summed up the Missouri decisions:

> The net result of this line of cases has been that Missouri grants immunity from liability in negligence action to a true charity in the activities and operations of the charity itself. . . .

In *Roberts v. Kirksville College of Osteopathy & Surgery,* 16 S.W. 2d 625 (1929), suit was brought for personal injuries by a "paying patient," who was operated on in the hospital owned and operated by defendant. Defendant was a corporation, organized without capital stock as a charitable association. Further, it appeared that no founder or organizer of the corporation was entitled to receive any pecuniary profit from the operation of the hospital or other activity of the college, and that all its funds were held in trust for the purpose of conducting a school of osteopathy, medicine, surgery and to conduct infirmaries and hospitals.

The college was held to be immune from liability for the torts of its employees because "it is a charity and holds all its funds in trust to carry out the benevolent purposes for which it was chartered by the state."

The court further stated that the agents of the charity (defendant) who do the negligent acts are liable. In other words, the immunity extended the charitable institution from tort liability does not shield the agents or employees of such institution, and such agents or employees may be held liable for their negligent acts.

3. Nebraska

Prior to 1966, charities enjoyed qualified immunity from tort liability in Nebraska. Under the earlier decisions, a charitable institution conducting a hospital was not liable for injuries to inmates (considered as beneficiaries of the institution's charitable purposes), including paying patients, though it was immune from liability for torts committed against a stranger or one of its servants. However, in *Myers v. Drozda,* 180 Neb. 183, 141 N.W. 2d 852 (1966), the court, in reversing a long line of decisions, held that nonprofit charitable hospitals are not exempt from tort liability to their patients.

The Nebraska law would now seem to conform to the modern trend of decisions, holding that a non-governmental institution is not merely because of its nature as a charity, immune from liability for damages in tort.

4. Iowa

In Iowa, charitable organizations are liable for damages in tort to the same extent as private persons and private corporations. In *Haynes v. Presbyterian Hospital Ass'n,* 241 Iowa 1269, 45 N.W. 2d 151 (1950), plaintiff, while a paying patient at defendant hospital, was injured through the alleged negligence of defendant's nurses. The court held that a charitable institution is liable for damages for the negligence of its employees in administering the charity.

5. Oklahoma

Oklahoma would also seem to deny a tort-feasor immunity from liability on account of its character as a charity. In *Gable v. Salvation Army,* 186 Okla. 687, 100 p. 2d 244 (1940), an employee of the defendant charitable institution sought to recover for injuries sustained because of the defendant's negligence in failing to furnish him a safe and suitable place in which to work. In reversing a judgment in favor of the defendant, the court stated that they are unable to agree with the authorities which exempt charitable organizations from tort liability. The court held:

> Charitable corporations are not immune from liability for torts by reason of any exemption accorded them on the basis of the purposes for which they were incorporated.

6. Colorado

In Colorado, the fact that the defendant is a charitable institution does not, of itself, prevent the plaintiff from maintaining an action in tort.

In *St. Mary's Academy v. Solomon,* 77 Colo. 463, 238 Pac. 22, the Colorado Supreme Court had before it for the first time the question of the liability of a charitable institution for the tortious acts of its agents. The Colorado court committed itself to what may be denominated the "trust-fund" doctrine, and held that the

trust fund rule does not bar an action against a charitable institution based on the tort of its agents, but that it does prohibit the levying of an execution under a judgment procured against it in such a suit on any property which is a part of the charitable trust.

The exemption and protection afforded to a charitable institution is not immunity from suit, not nonliability for a tort, but that the protection actually given is to the trust funds themselves. It is a recognition that such funds cannot be seized upon by execution, nor appropriated to the satisfaction of a tort liability.

Further, it is no defense to a tort action, that the defendant has no property subject to execution. *St. Lukes Hospital Ass'n v. Long,* 125 Colo. 25, 240 p. 2d 917, 920; *Michard v. Myron Stratton Home,* 355 p. 2d 1078 (1960).

E. *Liability where doctrine of charitable immunity held inapplicable*

In the absence of the application of the doctrine of charitable immunity, the causes indicate without exception that the tort liability of private schools and colleges is governed by the general rules or principles which control tort actions against private or ordinary business corporations.

Appendix "B"

DIAGRAM OF THE ANA DEFINITION
OF
PROFESSIONAL NURSING PRACTICE*
ANY ACT IN THE

1.	2.	3.	4.
Observation, care and counsel of the ill, injured or infirm.	Maintenance of health or prevention of illness.	Supervision and teaching of other personnel.	Administration of medications and treatments prescribed by a licensed physician or dentist.

REQUIRING

Specialized judgment and skill based on:

1. Knowledge
2. Application of principles

} biological, physical, social } sciences

EXCLUDING

1. Diagnosis
2. Prescription of therapeutic measures.
3. Prescription of corrective measures.

* Development by John Atherton, Attorney at Law for the Kansas State Board of Nurse Registration and Nursing Education, and used at KSNA workshop on Nursing Practice, June 26-27, 1963.

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9. 41 Am. Jur. 220, Physicians and Surgeons, Sec. 108.
10. *Erickson v. Dilgard,* 252 N.Y.S. 2d 705, 44 Misc. 2d 27 (1962).
11. *Ditlow v. Kaplan,* 181 So. 2d 226 (Fla. 1965); *Russell v. Harwick,* 166 So. 2d 904 (Fla. 1964); *Aiken v. Clary,* 396 S.W. 2d 668 (Mo. 1965); *Roberts v. Young,* 369 Mich. 733, 119 N.W. 2d 627 (1963); *Gray v. Grunnagle,* 423 Pa. 144, 223 A. 2d 663 (1966).
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16. *Bonnor v. Moran,* 126 F. 121 (D.C. Cir. 1941); *Zoski v. Gaines,* 271 Mich. 1, 260 N.W. 99 (1935); *Bishop v. Shurly,* 237 Mich. 76, 211 N.W. 75 (1926); *Sullivan v. Montgomery,* 279 N.Y.S. 575, 155 Misc. 448

(Continued on page 441)

Health Insurance

How Important Are Health Care Programs?

REX HARMON,* ***Topeka***

IF THE STUDENTS of all the campuses represented here today were confronted with the question "How important are health care programs?," the answers would be many and varied. If we were to circulate questionnaires among the conference participants and query our subject, the replies would be diverse.

"As imperative as my life-long ambitions," would be a fair summation of testimony given by one foreign student, who was here to complete his education; then, return to his homeland to educate others. This young man of whom I speak came to our country without governmental aid in pursuit of further development of his educational skills. This future teacher and his family were reunited here in Kansas through generosity of local citizens, hopefully for the duration of his education. During the second year on campus, he and his family were involved in a highway accident which injured all four members of the family. Two were released following outpatient treatment; the other two required multiple surgery of their many fractures. The most severely injured of the four required seven months of hospitalization and five trips to the operating room. Fortunately, the student was able to return to the classroom immediately because of the nature of his injuries and the foresight of his university to sponsor a health care program that covered in excess of $7,900 of their total expenses.

Another young student had barely enrolled and started her first freshman classes when she was hospitalized by a rare disease, requiring continuous care for over a year. She was undoubtedly the only one from among 10,000 students on this particular campus who eventually accumulated expenses in excess of $10,000 that year, or possibly for many years. We sincerely hope she recovered sufficiently in time to resume her education. We do know the economic barrier was lightened, if not removed, by adequate protection against such a financial disaster.

The case of one who never reached his assigned "dorm" is most gratifying. Enroute from out-of-state, his foreign-made automobile spun out of control and the resulting demolition sent him back home by way of ambulance. His parents had thoughtfully subscribed to the college-sponsored health care program they had received with other items of orientation. The contract that covered the $3,500 hospital bill incurred by their college-bound son cost them less than $30.00.

These are but a few cases that come to mind in search of our answer for all, and it is for *all* that our question must be considered for they, as individuals, do not qualify for what is termed "realistic coverage" at student group rates.

How important is it to protect the educational rights of our students? Little can be done to foster against military obligation; poor academic achievements; the lust for money versus a complete education; the listless, but capable non-student; and many other reasons for those who fall short of satisfying the opportunities of becoming learned. But, there is a measure to which we may subscribe to lessen the "drop-out" possibilities arising from unforeseen health care expenses. Financial difficulties of this nature naturally vary within the financial capabilities of each student. For example, $1,000 liability to a few may not interrupt continuation of their studies, while for others it could mean temporary absence or even final discouragement. In the original case of the foreign student and his family it, without question, would have resulted in absolute financial ruin and the loss of one very amiable goodwill ambassador for our country. It is doubtful that local citizens could have further aided his financial cause. It is quite possible that without adequate health care protection the hospital and physicians would have suffered the loss.

The mere fact that unusually extreme cases do occur among the purported "good risk" age group should be reason enough for sponsorship of a realistically sound health care program for our students. These are the cases that could snuff the rays from the lamp of learning. And yet, who qualifies to say which of the lesser cases would not enhance to the same degree. In Kansas, some 15,000 students subscribe to Blue Cross-Blue Shield. Thousands more are covered by their parents' contracts and other insurance offerings. In our practices of rating and pooling the *smaller* colleges, we find a category of institutions covering approximately 2,000 students. Thirty-seven Kansas campuses, institutes, and schools of nursing are represented herein, exclusive of the larger col-

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leges and universities. Total case expenses on these 2,000 students for the contract year ending September 30, 1967, amounted to $54,510.74. Among these cases were undoubtedly some that diverted financial hardship and emotional stress. Many, of course, did not use the coverage and some only very little, but the important fact is that adequate protection was there in case of need. It is impossible to pre-determine the needs of each individual; therefore, it is essential to design a broad range of benefits to satisfy the unpredictable as well as the average expenditure. The basic principle of underwriting is to "spread the risk among many" for it isn't a question of how many will be in need, but who the individuals might be.

It is almost unanimous among the colleges and universities in our state that a health care program should be offered to students. The degree to which they encourage participation varies considerably. Some include their endorsed program as part of the assessed tuition;

—others promote through direct mailings to parents;
—many request carrier representatives to be on campus during enrollment periods;
—a number include application cards and descriptive literature within enrollment packets;
—some of the colleges and universities require evidence of adequate coverage of foreign students or immediate participation in their sponsored program.

In designing a program, most carriers agree that joint involvement between faculty and student is advisable. A committee composed of selected students, a faculty advisor or department head, the campus physician or the health nurse is recommended. Our experience has been that students serving on these committees appreciate the recognition and experience derived therefrom. Many of them accept the assignment with a great degree of responsibility and strive diligently to formulate benefits to satisfy the needs of their fellow students. The mature guidance of the staff members of the committee interjects balance and practicality into their considerations and eventual decisions.

The question of offering obstetrical coverage to the married students is always a difficult committee matter. Normally, the married students who are not planning children during their college days far outnumber those who are or do. Since uniform benefits must be offered to all without individual selection of benefits, the inclusion of maternity coverage materially affects the rate of all family subscribers. Therefore, it becomes difficult to justify. On the other hand, an average obstetrical case, including both hospital and physician charges in Kansas, now costs approximately $450. In defense of those who have selected this coverage as part of their benefit structure, we relate that married student participation has not suffered. Also, among our student claims we have a $3,000 case resulting from complications of pregnancy.

Other benefits to be considered when developing a program are as follows:

—Hospital room allowance . . . a fixed dollar amount per day versus the full cost of semi-private with average semi-private toward private.
—Days of coverage per confinement . . . 30, 60, 90, 120, or 365.
—Hospital extras (ancillaries) . . . limited to a total dollar amount up to full coverage for days allowed.
—Hospital out-patient charges for accident or minor surgery . . . a fixed amount per year or treatment up to full coverage.
—Physicians' charges . . . indemnified with maximum, full payment, co-insurance or shared payment.
—Non-accident x-ray (in or out of hospital) . . . a fixed amount per year or reading, up to full payment.
—Laboratory examinations (out of hospital) . . . limited payment per condition or per year up to full payment.
—Supplemental accident coverage . . . to be considered if not otherwise adequately covered up to a specified total per injury or per year.
—Length of contract offered . . . twelve month coverage versus nine month coverage, to assure return of those who encounter health care expenses during the summer months.

Fortunately, most carriers do not expose the full range of their offerings, but have a few standard programs they introduce. They reserve their optional benefits to meet specific requests or as a means of reducing rates.

It is our feeling that students should purchase as much coverage as the traffic will bear. We make this statement primarily for two reasons:

1. Students may purchase coverage more economically than any other age category . . . they get more protection for their money.
2. The financial stability of the majority of the students needs this supportive hedge.

We say to the college administrators there is a source available, regardless of student-body size, to alleviate hardships created by health care expenses; and that we, as well as other carriers, welcome the

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The Community Hospital

—*Its Role in the Health Program for Small Colleges*

C. JEROME JORGENSEN,* *Topeka*

What is the role of the community hospital in the health program for small colleges? Obviously, this is no simple question to answer. It probably raises more issues than can possibly be resolved here. There are several possible approaches to answering this question —and I have selected one that may not be classified as the "cookbook" variety—but hopefully includes all the ingredients and embellishments. Since I represent our community hospital, I could describe the role Stormont-Vail serves for Washburn University—but this does not necessarily represent the typical. In fact, there is no model setting. But there is no reason why we can't cover most of the elements that would be important in defining the interphase of the college and hospital.

The first task for the health services of any college should begin by defining the problem of making available comprehensive health services for its students. Where are you going? What are your goals? There is the story of the airline pilot and his crew that became lost in a trans-Pacific flight. After much discussion and radio communication among the crew and navigator, the pilot finally realized they were hopelessly lost. In making his announcement to the passengers, he wanted to minimize the very perilous situation so he said, "Attention, please—this is your pilot—we are flying at 25,000 feet—the time is 8:20 —we have lost our course—*however,* we are making excellent time." This story points out that it is essential to know all the objectives before starting in any direction.

Many questions and facts must be gathered:

1. Who are your students?
   Age
   Marital status
   Sex composition (ratio of male/female)
   Curricula
   Demands of area—socio-economic
   Resident, non-resident—matriculation
2. What are their needs?

In answering these questions, the resources of the college and the community must be appraised to determine if all needs can be met and importantly, how well—qualitatively. Also, and economically, the manner in which this health care is delivered must be decided based on these community resources. Many influences and factors will contribute to delineating the role played by any community resource or combination of community resources.

Specifically, what is the educational role of the institution? Many large universities have medical and paramedical professional disciplines as part of their curricula. In order to provide the clinical laboratory for these disciplines elaborate health and medical services must be provided on campus. Provision of health services in these instances becomes a simple matter and may be an integral part of the learning experience for these disciplines—outpatient clinics for eyes, ears, glasses, dental work, physicals, etc.

Since most of you represent smaller universities and colleges, or at least, probably have no medical or paramedical teaching programs, there is no need for further elaboration. In these cases, there usually is no role played by the community hospitals.

In the absence of providing these services directly they must be made available in other ways. In this day of spiraling costs an important ingredient for the student's protection is a sound and comprehensive health insurance program. The university must assume the responsibility for making available a comprehensive program at a minimal cost for students—no easy trick. Blue Cross-Blue Shield has been a pioneer in this field and has provided a public service to all of us through its college enrollment programs.

In the absence of campus-based facilities and with the provision of prepaid health insurance the role of the community hospital becomes more significant.

In turning to the community hospital, what key questions should be answered? First, what services do they provide? Second, how good are they? Most community hospitals provide the basic medical services. This depends, however, not so much on the hospital as the medical staff. Are all basic specialties represented? The usual services are: Medical, Pediatric, Obstetric, Surgery, Psychiatry, Diagnostic, and Emergency Room (24 hours).

The health physician desirably should have admission privileges at the local hospital. In this way,

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the care for all students can be followed by him whether he decides to seek consultation and refers the student or acts as the attending physician.

Probably of prime importance is the 24-hour availability of hospital services. Obviously, it would be impractical to maintain college health facilities on this basis—which means your students must have a place to turn during off-hours of campus health service. Patterns of illness usually do not observe the eight to five, Monday through Friday rule. In this way your community hospital can be an invaluable resource.

Particular needs for service, such as obstetrics and pediatrics, will depend on the marital practices and age of your student population. Medical, surgical, and psychiatric services are usually universally required regardless of age. With the increasing pressures and responsibilities of modern living, the availability of psychiatric services and guidance and counseling can be vitally important in maintaining an emotionally healthy student population. In some communities, the physical proximity of the hospital may have a direct effect on the extent of interphasing of health programs that can be achieved. If the hospital is across the street from the college, the advantages are obvious.

The question of what is available has been properly covered. What about the quality of these services? A college with nonresident students in high proportions has a particular responsibility for assuring itself and the students that quality care programs are close at hand. How good is your community hospital? Does it wear the "Good Housekeeping" seal of our industry? Hospitals that meet the minimum requirements of good care are usually *accredited*—by the Joint Commission on Accreditation of Hospitals. This is a voluntary evaluation that the hospital seeks to assure the community that it is meeting those *basic* standards for good quality care for its citizenry.

So far this has been a rather one-sided question. Let's turn it around for a minute. What should the community hospital reasonably expect from the university in meeting the health care needs of the students? As a representative of an institution with several educational programs, I can speak with some knowledge of our own responsibilities. We have student programs in: Professional Nursing, Laboratory Technology, X-Ray Technology, Physical Therapy, Dietetics, Practical Nursing, and Hospital Administration. In all, we have almost 200 students requiring health services.

Essential elements should include:

1. Entrance physical examinations with a complete record of the history.
2. Follow-up physical examinations throughout the matriculation.
3. Maintenance of these good records and availability to local physicians when necessary.
4. Good preventive health programs including:
   a. Immunizations for usual infectious diseases, including influenza. Close living quarters can predispose the contagious process. This could also include good food handling practices if the college provides food services.
   b. Counseling services for troubled students. If problems are handled when they are small it can prevent traumatic situations.
   c. Educational programs aimed at drugs and their ill-effects, and safety—especially automobile. Athletic programs should concconcentrate on proper physical conditioning to minimize possible injuries and good medical surveillance throughout training and seasons of play or activity.

You might say that these efforts aimed at prevention would minimize the need for hospital clinical facilities. In a sense you might say we get the breakdowns in the system.

There are, of course, many other areas where the university and hospital may develop a symbiotic relationship (to borrow a term from biology)—after all, we can both be considered as resources for each other.

The college provides basic academic course-work for our nursing education program. The college provides opportunities for continued education—both formal as well as community-centered seminars. With the rapid increase in technology, coupled with the demands for health services, there will be some very strong forces acting to push hospitals as clinical laboratories and colleges and universities closer together meeting more goals that will be common and shared by both.

With mutual goals, students, faculty, curricula, and service population we undoubtedly will share common health programs and resources—to the advantage and strength of both. As our partnerships are strengthened, so will the provision of health service programs be enhanced.

Deficient eyesight plays a leading role in many hunting accidents, warns the National Society for the Prevention of Blindness.

Health Education—1968

The Role of the Health Educator

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ONE OF THE STRANGE PARADOXES of 20th century progress in the United States is the gap between the ability of medical science and the public's use of that ability to achieve optimum health and to prevent premature death and disability. Millions of Americans, for instance, have never received a chest x-ray or a polio vaccination despite the widespread availability of each and the publicity concerning them.

In 1968, no woman should die from cervical cancer—a disease which can be found and cured in its earliest stages. Yet nearly 13,000 women will die from this cause this year. The Public Health Service estimates that if all current knowledge about the control, detection and treatment of all types of cancer were fully applied, 120,000 patients with cancer could be saved annually instead of only 80,000. At least 40,000 cancer deaths then each year are needless!

Next to cataracts, the two leading causes of blindness are glaucoma and diabetes. Together they account for 20 per cent of all cases of blindness. Sample surveys indicate that about a million persons who have glaucoma are receiving no treatment because they do not even know they have the disease. It is easy to detect possible cases of glaucoma, painlessly and in a matter of seconds. If all persons over 40 had this simple check regularly, followed by a more complete examination, if indicated, 80 per cent of the blindness caused by glaucoma would be eliminated. In glaucoma screening surveys conducted in Kansas, an average of 20 to 25 new cases of glaucoma are discovered for every 1,000 persons over age 35 tested. Obviously then, not all Kansans receive complete eye examinations at regular intervals, although this procedure has been recommended for years.

Sample surveys indicate that about 2 per cent of the population has diabetes. One per cent know they have the disease and 1 per cent does not. This means around 20,000 persons in Kansas, alone, have undetected and untreated diabetes. On screening surveys conducted in the state, between 10 and 20 new cases of diabetes are detected for every 1,000 persons screened. Many of these persons have symptoms which they recognize as possibly being diabetes—yet they have not sought medical care.

The average American has lost half his teeth by the time he is 40, and 22 million people in this country have lost all their teeth. Yet more than half of all tooth decay is now preventable. By drinking water which contains one part of fluoride per million parts of water, children can get lifetime protection against tooth decay. They will have only one-third as many cavities as children who drink unfluoridated water. Despite the obvious advantages, proven safety, and low cost of this technique, most of you are familiar with the community rumpus which often develops over whether the public water supply is to be fluoridated.

The role of the health educator is like that of a catalyst, absorbing, then disseminating medical information in the direction where it is needed—the people. Thus, causing the reaction, we hope, of a well informed and healthy public.

It is in bridging this gap between what is known in medical science and what is practiced by the people of the community that the health educator has his most important role.

Public health workers have long recognized the axiom that a person's attitudes, fears, beliefs and prejudices influence his decision about taking advantage of the health knowledge and opportunities offered him. As Rosenstock points out, "It is known that behavior is determined more by one's belief about reality than by reality itself, and that people vary markedly in their interpretations of reality."

Demonstrations have proved, however, that effective health education of the public can bridge the gap between the availability and use of health knowledge, and do it rather spectacularly. The recent widespread use of the oral polio vaccine is an excellent example.

In Kansas, 90 of our 105 counties joined together in a massive attack on polio and in one week, 60

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per cent of the population in those counties, or over 1,000,000 people, received Type I oral polio vaccine. Over 10,000 volunteers—doctors, nurses, pharmacists and other workers manned some 400 oral polio vaccine feeding stations across the state. Response to Types II and III vaccine was almost as striking. This mass response to a recommended health action was brought about by an intense, widespread and coordinated health education program.

What Health Education Is

Nyswander defined health education as "A process of growth in an individual by means of which he alters his behavior or changes his attitudes toward health practices as a result of new experiences he has had." The health education program of a health department or a college, then, should consist of developing and providing experiences for people which will motivate them to change their behavior with respect to health.

The technique of health education was introduced to meet problems that could not be dealt with effectively by other means. For example, when proper feeding practices and immunization were introduced to reduce infant mortality, mothers had to be informed of the value of the new services available to them, and motivated to use them.

Now the long term or chronic illnesses and accidents are our major challenges and health education is the primary tool in persuading people to make the day-after-day decisions that are required to prevent premature death and disability. As Leavell points out, "The job is made extraordinarily difficult by the fact that most of the time the instruction amounts to threat avoidance."

It is easy to persuade people to have a painful appendix removed; then they have the assurance that relief will be evident and quick. When it comes to suggesting changes in dietary and other well-established habits, such as smoking, cause and effect are not readily seen and action may be slower; changes in the public's behavior are not so apparent.

For example, we know that although the number of cigarettes sold continues to rise, so also does the number of ex-smokers and non-smokers. Thus changes in individual behavior are not apparent because they are overshadowed by the mass of group behavior.

The long-range effect of this health behavior is particularly interesting. It is pointed out that if every teenager stopped smoking cigarettes and none started, it would be 40 years before the death rate from lung cancer would begin to drop.

Methods

Methods of health education have changed through the years. In the early days there was a good deal of reliance on parades, healthy baby contests, gold stars awarded for proper health behavior, and poster contests. The elementary school health textbook was called "Health Habits" and health as it was taught then consisted primarily of learning to diagram the eye, or the tooth or the ear, and to learn to brush your teeth once a day, sleep eight hours every night with your window open, drink eight glasses of water daily and have a bowel movement every day. Almost every family had a revered copy of *Dr. Black's Family Guide to Medicine* and the Lydia Pinkham ads were about the best there was in sex education.

Then reliance was shifted to the mass media. Health educators were considered to be primarily public information people. They relied heavily upon the written word—newspaper articles, pamphlets, and posters, and to a lesser degree upon the spoken word through prepared radio talks, or talks to women's clubs.

With the emergence of the findings of studies conducted by Kurt Lewin and others during World War II, health educators became behavioral scientists. These findings revealed much new information about changing attitudes and individual and group behavior and motivation. Group dynamics became the vogue and mass media as a motivator of desirable health behavior was looked down upon. Health educators in training were exposed very briefly to news writing, exhibit construction, poster and pamphlet preparation, but given heavy exposure to educational psychology, courses in group dynamics and community organization.

Hochbaum and Rosenstock's early studies of how people could be motivated to take the proper health action were extremely important in shaping how health educators organized and carried out community health programs. These studies concluded that an individual will not take an action voluntarily to prevent or detect a health problem (such as seek a chest x-ray, get his children immunized or have a Pap smear) unless he first accepts his own susceptibility to the condition in question. He must believe that he can get the disease. Secondly, he will not take this action unless he believes that its occurrence would have serious implications for him or for his family. Thirdly, he will not take the action unless he believes that it will be beneficial in reducing either his susceptibility to the condition or the severity of the condition should it occur. Fourth and finally, the studies suggested that people are less likely to take recommended actions if they perceive important barriers standing between them and the action. These barriers are of two kinds. The first can be regarded as situational barriers: matters of convenience, cost, time or efficiency. The second kind of barrier—much more subtle, but nonetheless important—consists of

psychological barriers—the individual's feelings about pain, discomfort, embarrassment and the extent to which he believes that the recommended health action would be painful, uncomfortable or embarrassing to him.

The pendulum is now beginning to swing somewhat back the other way with the realization that mass media does have considerable to offer in the field of health education.

In some recent studies conducted by Rosenstock and others, they found that a surprisingly large proportion of the population was reasonably well informed about the hazards of radioactive fallout, pesticides and fatty foods. More than two-thirds of the respondents had some correct information about the effects of insect and plant sprays upon health while more than three-fourths reported having heard about the health effects of fallout and the health effects of eating fatty foods. When we consider those who were correctly informed about the dangers of fatty foods, two-thirds indicated that they were currently taking action to prevent or overcome the problem and they specifically reported such actions as cutting down or eliminating fats, milk or butter from their diets or using unsaturated substitutes such as vegetable oils or powdered milk. The researchers attribute the fact that such a large proportion of the people queried used the term, "cholesterol" apparently with understanding, and referred freely to "polyunsaturated fats," to the great amount of publicity which has been given to this subject in the nation's press, popular magazines and over radio and television.

There now appears to be developing a reasonable amalgamation of all of the previous approaches. The wise health educator today knows that health education is an extremely complex process during which we sometimes use one approach and sometimes another. We recognize that there is no easy rule of thumb that can be applied for insuring that people will attend to health information, or for insuring that they will learn, retain and use information. The human organism has a great ability for making itself comfortable. Thus we know that whereas the smoker and the non-smoker are apt to learn about the same amount of information during a program dealing with the hazards of cigarette smoking, the smoker tends to forget much more quickly what he has learned. There is no pat rule that appears to be uniformly effective for all groups of people under all circumstances.

We recognize that mass media has limitations in motivating people to take the desired health action. Some technique much more probing, much more personal, is often necessary. However, we know that the sheer numbers of people to be reached necessitates that we use a massive approach to the dissemination of health information. We also know that often the mass media supplies the triggering mechanism necessary before even the highly motivated person will take the desired action.

Health Education Services Available to Colleges

Health education services are available to colleges usually from one or more of four sources. The college health service may have one of its own on its staff. The local health department which serves the community where the college is located may have one. There are almost always health education services available from the state department of health and many of the voluntary health associations such as the Heart Association, the Cancer Society and the Tuberculosis and Health Association also provide these services.

Regardless of where the health educator is located, he will function on two levels. He has staff responsibilities in health education to his own department or agency and he will work with the many segments of the community—either the residential community or the college community.

The likelihood that a college health service will have a trained health educator on its staff has increased in the past few years and will, no doubt, increase much more rapidly in the future.

Up until a few years ago, almost all persons who were considered professional health educators were trained as "community health educators." They are located primarily in state and local health departments and almost all have a masters degree in public health education. Their concern is the community and they are experts in community organization and group processes. Almost all have been trained in graduate programs at one of five or six schools of public health. The number of graduates turned out each year at best does not exceed 300 and many of these are foreign students.

The demand for students trained in this fashion is enormous and far exceeds the number of graduates available. To meet the demand, health departments have begun to hire baccalaureate degree graduates, with no special training in health education, with the assumption, I suppose, that something is better than nothing. Needless to say, while some function quite well in this capacity, others do not.

A recent trend has been the development of baccalaureate programs primarily for the training of "school health educators." The education of these students is more concerned with teaching skills and methods, and to a lesser degree, with problems of community health, community organization and group

processes. Students from these programs often become health teachers in schools or consultants in health education to large school systems. To help meet the demand for community health educators, the schools with baccalaureate programs are beginning to place more emphasis upon community health and to seek certification from the American Public Health Association.

In Kansas, only three of our large local health departments have health educators on their staffs. Kansas State University has a health educator with the student health service. The University of Kansas Medical Center has several on its staff. The various voluntary health agencies have persons serving in this capacity. Because of the limited availability of health education services at the local level, the state health department fulfills this function to the best of its ability. This pattern of limited local health educators is one which is repeated in most of the midwestern states.

Let us zero in briefly on some of the direct health education services which are available.

The Kansas State Department of Health operates a large film lending library. This library contains around 2,200 prints of 16 mm educational films on almost every conceivable health-related subject. There are films on sex education, smoking and health, venereal disease, drug addiction, alcohol education, accident prevention, first aid, boy-girl relationships, family life, mental health, mental retardation, preparation for marriage, growth and development, and personal hygiene; films on the functioning and care of various parts of the body, such as the heart and cardiovascular system, nervous, skeletal, muscular, reproductive and digestive systems, and eyes and ears; films on cancer, heart disease, epilepsy, child care, dental health, quackery, water and air pollution, nutrition, diabetes, tuberculosis, prenatal care, juvenile delinquency, premarital pregnancy and physical fitness. There are films on family planning, labor and childbirth, care and training of the retarded, rehabilitation of stroke patients, and external cardiac massage.

The films are graded from kindergarten through adults, and some are of a professional nature. Films may be borrowed by any individual or organization in the state at no charge other than return postage. A descriptive catalog listing films is available.

That these films serve a useful purpose is evidenced by the extremely heavy demand for them, particularly from the schools. Over the past several years, the use of the film service has shown a continuous increase, doubling during the last seven years. Total audience last year was nearly 1,000,000 persons and total showings nearly 30,000. There were 5,000 more film showings last year than the year before and the pace of this increase has accelerated even more this year.

Many of the most popular films are booked completely for as long as one year ahead even though we may have several copies. For example, we have 17 prints of a venereal disease film, "The Innocent Party," and all 17 prints are booked solidly most of the year.

Most state health departments operate similar film libraries and if you are not taking advantage of this service, then by all means seek it out. Let me hasten to add at this point, that we have a general policy against loaning films from our library to out-state borrowers for the reason that we have such a difficult time meeting the demand from within the state.

The Kansas State Health Department also maintains a reference library of literature, pamphlets, folders, leaflets, booklets and brochures. We have in the neighborhood of 1,000 different titles dealing with every conceivable health and safety topic. These are also available, at no charge to residents of the state. More than a million copies are sent out each year, the majority going to schools and colleges. Students writing term papers, those doing research in health and related fields, those preparing for teaching careers in the science, family living and home economics fields are heavy users of this material. Again, most state health departments operate a similar publication service and if you have not already tapped this rich resource, then you may wish to do so.

Voluntary health agencies also have film and publication services.

Because a limited budget forces us to curtail our publication service to a certain extent, we urge schools to develop and enlarge the health reference shelves in their libraries. We are very happy to send several copies of all pertinent publications we have to be placed in the library and checked out and used by students as they do other resource material. Some of the publications are expensive and quantity copies sufficient for every student in the class cannot be provided.

Into this reference library, also, should go copies of the health department and voluntary health agencies' annual and biennial reports, copies of monthly or quarterly newsletters, and various other program activity and statistical reports, guidebooks, conference proceedings and such. Health departments and the voluntary health agencies are happy to add the names of schools to their routine mailing list to receive these publications regularly, if requested.

Most of these agencies also have educational slide series, filmstrips, records, exhibits, posters and other visual aides which may be borrowed and used.

In addition to visual aids and materials, health

educators are also available for consultation in a number of different ways.

Health is wonderfully exciting and dynamic. However, because of the way it is taught in most schools, it becomes dull and deadly tedious—a subject to be avoided by the student if at all possible. Much of the health which is taught in the elementary and secondary schools is taught by the students who take health courses in college—physical education and science majors. If we can but instill in these students some interest in, enthusiasm for and commitment to, the subject, perhaps the caliber of health teaching in the elementary and secondary schools will improve. Health educators and others in the community health field have a vast reservoir of contemporary information about health and medical advances which should be tapped by the college-level health instructor. At the rate which medical science is advancing, it is impossible for health textbooks to be kept up-to-date unless they are revised about every six months. It is totally impossible for the health instructor to keep abreast of these advances unless he has no responsibilities other than health instruction.

It is estimated that a physician in practice today does not yet know 75 per cent of the things he will need to know 20 years from now to be an up-to-date practitioner and that three-fourths of what he now knows will be useless to him because it will be obsolete. Merely to keep up with developments in medical and scientific journals a physician would have to read the equivalent of 27 new books every day of the year. He would need to subscribe to and read 350 medical, scientific and pharmaceutical journals, written in every conceivable language.

There are almost 2,000,000 pages of medical periodical literature and about 170,000 medical abstracts published each year.

Health must not be taught in the context of 1958—it must be taught as it is now, in 1968, and the problem of keeping up with what is the "now" is an extremely difficult one.

The majority of health educators from the health department or voluntary agency field are not certified classroom teachers and cannot be expected to teach other than to present an occasional guest lecture. Their value is in serving as a resource person to the instructor, in making available to him materials and visual aides, and putting him in touch with others from the health field who can fill special needs. The health educator's business is to know where information and material about health can be obtained. Health educators can also assist in developing workshops for teachers which deal with particular subject matters—especially those considered to be the "hard-to-teach" such as sex education, venereal disease, alcohol education, and others.

The health educator can also assist with the planning, development and organization of special health projects and programs. If your school holds a "health careers" day or occasionally has a student conference on contemporary health problems, the services of the health educator can be utilized. Publicity concerning the program is an item he should be particularly helpful with.

I have touched upon only a few of the direct services which can be expected from those serving in the capacity of health educators. I'm sure there are more. Dr. Jubelt at Kansas State University, for example, has his health educator working directly with the sororities, fraternities and other groups living on campus in planning and holding discussions about current health problems.

Regardless of from what source you obtain the services of a health educator, remember that he is, first of all, a resource person. In addition he is a stimulator, an organizer, an educator and a communicator.

John Ruskin had something to say about education which I think is particularly appropriate when applied to health education. And that is this: "Education does not mean teaching people to know what they do not know; it means teaching them to behave as they do not behave."

Health Insurance

(Continued from page 430)

opportunity of discussing your needs and developing a satisfactory program.

In conclusion, it is not our purpose to convince through fear, but it has been prophesied that by the turn of the century a day in the hospital could cost between $300 and $700. The same forecaster also foresees a $66,000 annual salary for those presently earning $6,000. The latter prediction seems remote, but if the former becomes reality, we should all pray for its actuality.

Student Counseling

New Directions for the Role of Counselor in a Small College

JEAN H. BAER, Ph.D., *Chicago*

COLLEGES, LARGE AND SMALL, ARE either in or are nearing a state of change brought about by the electronic revolution. The impact of educational technology on the counseling centers and services, just as on the instructional services, is being felt; and certain aspects of the role of counselor, just as the role of instructor, are changing. Other signal impacts on the counseling service are the professional counselor manpower shortage; the widening culture gap between adolescent and adult (parent, teacher, and counselor); and the increasing heterogeneity of the student body on many campuses in terms of age, experience, goals, background, and abilities.

Based on my visits to small colleges in the Midwest and West, on my contacts with staff members throughout the country, and on my professional reading, my impression is that the changes occurring in the small college are sometimes in advance of those in the larger institution of higher education. In general, however, they are following rather closely upon developments in the large college, since the overall goals, population, staff, and facilities are similar.

The new directions in the counselor's role—to some of you these may be "old" on your campus—can be categorized as follows:

1. Utilization of a computer-based automated counseling system as part of the counselor's repertoire for information retrieval and for reinforcing certain learning by the student and for integration of data about the student for the counselor.
2. Developing "Dial-a-Career" telephone tapes or "Push-a-Major" juke box records or a Self-Counseling Manual (a kind of teaching machine) for occupational and educational information retrieval by the student.
3. Employment and wider use of nonprofessionals, who are college graduates, in advising and information-giving capacities.
4. Broader emphasis on group counseling in a variety of areas, such as with groups in similar occupations or fields of study, with "discovery" programs for women, and with groups focusing on adult concerns.
5. Utilization of new staff members such as the "Health Counselor."
6. Stronger emphasis on counseling with adult students.
7. Training and supervision of student counselors for new functions.

These directions imply that the counselor has to update certain technical competencies, has to develop sharper skills in working with groups, has to provide more flexible training and supervision for junior or non-professional assistants, and has to broaden his capacity for consultation and cooperation with other professionals.

Computer-Based Automated Counseling System

We have evidence in high school and college settings that a computer programmed to simulate behavior performed by counselors such as handling grade points, converting scores, interpreting percentiles, making predictions regarding a counselee's chances for success in various educational and occupational settings, presenting course requirements with alternatives, suggesting pertinent occupations for consideration, etc., can produce counselee behavior similar to that effected by the counselor. It may not be possible to program certain attitudes and feelings such as acceptance, support, empathy, and sensitivity to nonverbal communication, but the computer can communicate with a counselee in certain areas just as a counselor does.

In an educational counseling situation, according to a report by Loughary, (1) nearly all the students in the experiment had a favorable attitude toward both the computer method and the counselor approach but were more positive toward the counselor; (2) students felt that the counselor had a greater amount of information; (3) students felt that the counselor would know more about their interests and personality than the computer; (4) students felt that the automated counseling system had more specific and factual information than the counselor regarding col-

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lege requirements, grade point average, etc.; and (5) most students felt they would like to see the computer system used in conjunction with the counselor. An interesting aspect of the report is that a significantly greater number of students indicated having problems with their courses to the computer than they did to the counselor. Might this represent the non-threatening atmosphere of the machine?

When I visited one college where the instructional and counseling programs are computer-based, I had the opportunity of trying out the teletype keyboard one uses to converse with his "automated teacher" or "automated counselor." I was quite impressed with the clever, but not sarcastic, humor of my unseen programmer when I made some errors. The programs, of course, are just as good as the quality of the study and collaboration with the teaching-counseling staff by the professional writing staff. In colleges where science instruction, math instruction, first-year nursing instruction, etc., are in large part automated, both to strengthen the quality of the learning and to serve as an aid to the lecturers, laboratory personnel, and clinical instructors, a natural next step is to utilize the automated set-up in areas such as counseling where certain learnings are necessary and can take place before the one-to-one relationship with a counselor develops. The student often needs to pull together ideas about himself, such as his background, his abilities as compared with other students, and his interests, and he may need to do some preliminary evaluation of choice of major or choice of college program. These learnings can be achieved through the use of the computer. Since educational and vocational planning often comprise 75 per cent of a counselor's activity, the counselor's and student's collaboration with an automated counseling system for preliminary investigation and exploration seems to be a worthy innovation, if the hardware is already installed as part of the instructional program.

"Dial-a-Career" Telephone Tapes, "Push-a-Major" Juke Box, and Self-Counseling Manual

Again the use of tapes, records, and teaching machines in instructional programs have had an impact on innovative developments in counseling programs, most particularly affecting the functioning of the counselor. The aim is to have the facilities and equipment readily available to students in the student center, the library, the counseling laboratory, the dormitory, or at home, if the student is a commuter. Just as the student has a choice of dialing the telephone at home and getting the run-off of French pronunciation for tomorrow's lesson or of going to the language laboratory itself to play tapes, so too can the student with a counseling appointment next week dial a number at home or on campus, play a tape or record at a central spot on campus, or work with his self-counseling manual at home or in the library. The self-counseling manual is used for retrieval of information, for review of certain facts, and for a run-down of various alternatives. One self-counseling manual has been developed at the University of Illinois, as part of a five-year research project, to simulate the effectiveness of a pre-college counseling interview. The results indicate that students reacted favorably to programmed counseling, although they preferred the one-to-one counseling arrangements. The data suggest that the self-counseling program serves as an adequate substitute for counseling for some students and as an efficient introduction to counseling for others. It seems to have value as a screening device whereby some students decide no further counseling is needed and others decide they need further help. A new project under way at the University of Illinois is a program written to provide psychotherapy for students with excessive examination anxiety.

Non-Professional Staff

There is a noticeable trend in the use of less than professionally trained counselors to provide needed advising and information services for students. This is true on small campuses where the supply of available personnel in the community is limited and on large campuses where the need for personnel to handle increasing numbers of students grows steadily each session. The use of testing personnel, ministers, social work aids, and faculty wives to fill certain roles in the counseling center is noted in many colleges of all sizes. While some of their duties are clerical-related, others require considerable skill and judgment. National concern has been expressed relating to their selection, training, experience, duties, and to the problem of confidentiality of records. Studies are in progress to delineate the best use and the best in-service training for those without professional training and experience.

Group Counseling

Regardless of the competency of counselors in this role, there is a growing movement to provide more students with opportunities to share experiences held in common, to discuss their feelings of anxiety, and to lessen loneliness. Several community colleges have been in the lead in developing effective group counseling programs. One approach has involved supplementing the instructional program by forming voluntary groups in such occupational fields as child development aid, nursing, sales, etc. The common bond

of interest the students have fosters the growth of such groups, and helps the students explore their concerns, discuss their feelings about relating to authority figures, their clientele, patients, customers, and others, and give support to each other in handling their roles as students and workers. Groups with titles such as Personal Growth and Development and Personality Development Seminar, in addition to the more familiar Career Planning groups, Academic Development groups and Orientation Discussion groups, are offered by counseling departments on different campuses, mainly through the instigation of students.

Considerable group counseling has been carried out with under-achieving students, but the results, according to research reports, have been mixed. Several recent well-designed studies indicate that those counselors, working with under-achieving groups, who provide relatively high levels of accurate empathy, warmth, and genuineness were quite helpful in producing measurable change in the students, whereas the average counselor probably had no effect, and the below average counselor, a harmful effect.

An interesting approach has been reported at Kendall College, a small two-year college, in the development of group counseling. Very favorable measurable results in students' academic performance as well as in growth of self-esteem have been obtained. The focus in the new groups, as contrasted with previous group psychotherapy, is placed on what the student has going for him, on his personal resources, rather than on what hampers him—or in student parlance—what has him "hung up." The emphasis is on individual discovery of his success experiences, value systems, and goals, and on immediate group reinforcement of the personal strength, resources, and promising experiences of each group member. The goal is not to delve into problems and conflicts, unless very essential, but to examine areas of their lives which they may have ignored previously. The groups are as heterogeneous as possible and are highly structured in nature by the counselor who is the group leader.

The Health Counselor

This individual, a public health nurse with counseling training or advanced psychiatric nursing background, is a new addition on various community college campuses. Because of the different status of health services in many community colleges, the Health Counselor functions with, or as an adjunct of, the Counseling Service staff. A variety of problems seem to be presented to the Health Counselor. The emphasis of the counselor is likely to be on preventative mental health. The Health Counselor is able to make effective referrals to physicians, community health agencies, and social agencies, and to provide follow-through for the student and his family. Adult students in particular have made good use of the Health Counselor. Short drop-in contacts as well as scheduled appointments are usually maintained. With the advent of the Health Counselor, a considerable increase in intra-departmental referrals has been noted.

Counseling Adult Students

Although there is a keen interest in providing counseling service to adult students on campus, in general the services are only minimal in nature—e.g., if most adults attend part-time in late afternoon or evening, only a meager counseling staff is usually available. Adults are often not invited to pre-college testing and counseling programs or orientation programs. While it is true that these programs may not be aimed at adults, certain aspects of them might be provided for adults. The older student, in contrast to the younger, often received little counseling in his previous schooling and may actually want and need more extensive counseling than his younger counterpart. It has been observed that many older students, particularly on the community college campus, were not graduated from high school (achieving their diplomas by means of equivalency tests), thus missing some opportunities for educational and vocational guidance and counseling. With retired armed service personnel, homemakers, and the minimally employed often seeking new training or new careers, effective counseling with adults who bring many other burdens to the campus with them, may really require more time and effort. Adults tend to enjoy discussion groups with other adults—often in combination with a lunch, supper, or coffee break. To ease some of their feelings of being too far out of the educational swing of things, counselors are trying to provide opportunities on campus for group counseling, or to refer adults to community centers where group counseling is available. A program combining some social aspects, some group discussion, and some group counseling—by whatever name it can be called—appears to meet the need on some campuses. On my own campus, the "Over-The-Hill" group is quite unstructured as an organization, is flexible, and stops and starts readily, but its main focus is discussion of common problems and of the feelings relating to family pressures, to their own inadequacies, to their guilt, etc.

A number of colleges offer "discovery" programs for adult women which, in addition to seminars to stretch the mind or special educational or training programs, include individual testing and counseling.

Some colleges in this area are in the forefront of this activity—Lindenwood, Marymount College, Central Missouri State College, Washington University, University of Kansas, University of Missouri at St. Louis, and others.

Student Counselors

The use of students as "counselors" seems to be a growing trend, depending in part on the availability of professional staff to train and supervise students, whether as proctors, orientation leaders, dorm counselors, group counseling assistants, information aids, study skills tutors, etc. Employment of students in the counseling area gives rise to the same concerns as in utilizing nonprofessional staff—their selection and training, and maintaining the confidentiality of student records.

The recent availability of federal funds to provide work-study opportunities for students of limited income has given the impetus to utilizing students in various capacities in our colleges. In our institution, student assistants are used as "go-betweens" from the college to the home, and to the counseling office. In efforts to reach a greater proportion of disadvantaged students, currently enrolled students were considered the best available resource to make home visitations. During these visits the students were able to interpret the expectations of the institution, emphasize what gains the incoming student might plan to acquire, explain how counselors might be able to help, and encourage each student to seek help before his concerns multiplied. While performing functions of admissions personnel, in a real sense they also performed counseling functions.

In a report by Brown and Zunker about the use of student counselors, it is noted that students represent the cheapest resource on campus. While this may be true in a financial sense, the important use of students as counselors seems to derive from the alienation of many students from adults, and from the superior capacity of students to interpret, explain and clarify the mysteries of institutional life and customs to their peers.

Through the mirror darkly, I can foresee other directions the counselor's role will take—such as the much greater use of the counselor in analyzing, through testing and counseling, what an individual student *needs* in his college experience, rather than assisting him in acquiring the typical pattern of 64 or 128 semester hours of requirements and elective courses. I can visualize the impact of greater use of closed circuit television transmission in one-to-one counseling as well as in group counseling; and I can predict some distinct innovations with the development of a low-cost visual telephone. My intent today, however, has been to point up some changing emphases in the counselor's role that are already in full view in some institutions, if not in full bloom everywhere.

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Mental Health Resources

Available Outpatient Mental Health Services

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In order to present an understandable picture of what resources are available and also offer some ideas on possible areas of cooperation between the colleges and the mental health resources, an overview of the Kansas Mental Health Program, including a brief consideration of its historical development, is necessary.

Since the major portion of my experience has been with the community mental health movement, I will draw heavily from this experience. All material presented in this paper can be found in publications of the Community Mental Health Services staff.

The first hospital for the mentally ill in Kansas was established at Osawatomie in 1863. This was the beginning of state activity in this area which soon led to the establishment of state institutions at Topeka, Larned, Parsons, and Winfield. During these early stages, the Kansas institutions were no better and no worse than those in other states.

In 1948, greater awareness of the problem of mental illness led to direct action which resulted in the development of an outstanding state hospital program in the early 1950's. Dr. John Grimshaw and Dr. Howard V. Williams, Jr. both took part in this development under the leadership of Dr. Karl and Dr. Will Menninger.

We in Kansas were making progress in a parallel direction that was focused in the local communities. This was the community mental health movement which began in Kansas in 1948 when the Kansas State Board of Health received money from the United States Public Health Service, under provisions of the National Mental Health Act for the purpose of developing community mental health services. At this time the Guidance Clinics at Atchison and Wichita were the only community mental health facilities in Kansas.

In 1961, the Kansas Legislature transferred the State Mental Health Authority to the State Board of Social Welfare, and also enacted new permissive legislation (K.S.A. 19-4001-4009) which allowed local communities more freedom and flexibility in developing local services.

This legislation enlarged the scope of services which community mental health centers could provide and enabled county commissioners to appoint a citizens' governing board representative of community agencies in the helping professions. It raised the allowable levy to one-half mill. It allowed centers to be organized as nonprofit corporations or as units of county government. It also enabled several counties to join together in the establishment and support of one center.

This latter provision is particularly helpful in Kansas where many single counties cannot raise enough money to support a full range of services to the community.

This legislation, together with increased awareness of and demand for services, led to the establishment of centers at an increased rate and we now have 25 local community mental health centers which serve over 90 per cent of our population.

At this point, I should probably define what I mean when I use the term "community mental health center." A community mental health center is a public or voluntary nonprofit agency, locally administered and financed, combining the skills and knowledge of various professional persons—psychiatrists, clinical psychologists, and psychiatric social workers—to help meet the mental health needs of the community. The services offered will be determined by a variety of factors: the needs of its community; the law under which it is established; professional staff employed; and other health and welfare services in the area. In general, the services include direct services to patients, educational programs, and consultation to care-giving persons and agencies in the community.

Other outpatient mental health services are also available in Kansas. These include private psychiatrists practicing in 13 different communities in Kansas; the state hospital outpatient services; VA facilities; and facilities such as the Menninger Foundation, Prairie View Hospital, the Hertzler Clinic, and University of Kansas Medical Center.

Some of the impetus for the added activity in the establishment of local mental health services probably was a result of the two year mental health planning project in which Kansas citizens participated in

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Presented at the Central College Health Association meeting, Washburn University, Topeka, March 14-16, 1968, by Mr. Coniglio, in collaboration with Dr. Howard V. Williams, Jr., Director, Community Mental Health Services for Kansas.

planning comprehensive mental health services for Kansas.

This planning was stimulated by the 87th Congress, which in response to requests from the National Governors' Conference and the Conference of State and Territorial Mental Health Authorities, made funds available to assist the states in planning for comprehensive mental health services. The intent was to encourage each state to develop a plan for comprehensive community-based mental health programs. The federal guidelines directed that professional and lay individuals and groups with an interest in mental health services—whether preventive or curative, private or public—must participate in effective and meaningful ways in developing and implementing this state plan for comprehensive mental health services.

The State Board of Social Welfare, in following the advice of over 2,000 Kansans who participated in the planning project, proposed that mentally ill citizens of Kansas have easily available and without stigma, the *right services,* at the *right time,* and the *right place.*

The state has been tentatively divided into 25 mental health districts, each of which will be served by a community mental health center. We now have 24 operating community mental health centers, of which 11 serve multiple-county districts. Approval has been given for the establishment of the 25th center, and services will be initiated in this center as soon as staff has been recruited. The basic network will soon be completed and then every Kansas citizen will be no more than one hour's drive from the center serving the district in which he resides.

These centers, supported and governed by the communities and counties they serve, offer outpatient diagnosis and treatment, mental health consultation and education, and some emergency care.

These 25 districts have been further compiled into 11 mental health areas, each of which will eventually be served by a comprehensive mental health center offering a wide spectrum of mental health services. It is planned that 11 of the basic outpatient community mental health centers expand their programs and staffs to provide, in addition to the services offered by the less comprehensive centers in its area, inpatient services for children and adults, partial hospitalization services, such as a day hospital, 24-hour emergency care, specialized services for alcoholics, the mentally retarded, professional education and other services appropriate and necessary for a comprehensive center.

Each comprehensive center would also provide consultation and inservice training to staffs of the one or two associated community mental health centers serving the districts in the larger mental health area, and would be a source of specialized psychiatric treatment for patients referred from less comprehensive facilities.

Included in the series of publications for planning comprehensive mental health services in Kansas is one entitled "Program Guidelines, Volume II," which contains a study paper and a committee report on mental health programs in colleges and universities.* This committee struggled with the issue of how to retain local autonomy and independent self-determination, while having access to public funds. The report in general suggested some unsureness concerning the role of mental health personnel and mental health services on the college campus.

This committee included representatives from five Kansas state colleges and universities, two private colleges, three junior colleges, and two mental health professionals outside of college settings.

All the committee members expressed the need for providing more adequate mental health facilities for college and university students. The committee further suggested the college mental health programs could include:

1. More effective use of local mental health centers and state hospitals.
2. Enlargement of current mental health programs to include therapy.
3. More use of private mental health facilities.
4. Improved liaison between college and existing mental health facilities.
5. Develop more effective inservice training and orientation programs within the various colleges and universities to alert the faculty and staff to the mental health services that are available to students.

The Mental Health Planning Project staff prepared a study paper on mental health services in Kansas colleges and universities. This study paper strongly recommended a closer relationship between mental health facilities and colleges.**

The planning staff proposed the following:

1. Services to university.
   a. Consultation with administrative officers about mental health implications of programming behavior problems, management problems, etc.
   b. Collaboration with student personnel services.
      (1) Consultation with dean.
      (2) Training of dormitory counselors.
      (3) Aid in interpreting problems to parents.
   c. Consultation services to faculty.
   d. Consultation services to Student Health Services.
2. Services to individual patients.

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* Pages 35-59—*Program Guidelines,* Volume II.
** Pages 40-43—*Program Guidelines,* Volume II.

Perhaps an atypical case would illustrate one way that a troubled young man, a university student, received help. The situation is not the usual one, for there were a number of extremes involved. One extreme was that the young man's I.Q. was tested and found to be in the upper .1 (one tenth) percentile across the nation, and gave him the capacity to be highly critical of his parents, his teachers, and his doctors from a very early age. Another extreme was his fear of talking loud, or talking back to any of the people of whom he felt so critical. This fear became so severe that he was unable to attend class in college, or visit a doctor, or leave his house unless he was accompanied on each expedition by his own mother. Yet, remarkable to observe, once at his desk at home, or his laboratory table in physics, or the doctor's office, his performance was always close to perfect.

The nature of his difficulty and its severity was recognized when the patient consulted the college student health unit, but the members of that unit were social acquaintances of the family whom the patient had known from childhood. The local mental health center was available, and had as consultant a psychiatrist who only visited the center once weekly, but who was a stranger otherwise to the patient. It was easier for the student to talk to a stranger about his pain than to someone he knew, and shortly after he became comfortable in the doctor's office, he could leave home and come to the office by himself. When it became desirable in his mind to see the psychiatrist twice a week instead of just once, he was able not only to leave home unaccompanied by his mother, but even leave home and drive a car to the separate city without his mother.

Next he attended the outpatient clinic where the doctor worked for fifty-odd visits at the rate of twice a week. The student gained enough determination to get well to suggest that he be analyzed in the classical manner. At this time, he could be referred to a psychoanalyst and the treatment shifted to a very deep level, and he was seen five times a week. This event made it necessary for him to move out of town and he was almost emancipated from the abnormal dependence upon his mother, and was fairly on the way toward a healthy, warm respect for the accomplishments of his father. Also by this time he had a bachelor's degree. When in turn he completed his analysis, he was a member of the research faculty, possessed a Ph.D. with a great deal of scholastic recognition, and had lost the fear of open spaces. What he had instead was a great interest in sports car racing and mountain climbing that at times left the analyst himself a little weak in the knees.

This is an extreme case, in length of time, and in the use of the full range of the services to which I make reference in my talk, but if one person can use the full range, a great number of people can use the component parts, to the full extent that such a person needs them. This is one example of cooperation and for each that I can cite, I'm sure you can think of many more.

The community mental health centers have a commitment to engage in mental health consultation with community agencies, professionals and other service groups. All the centers state this in the by-laws relating to the purpose, organization, and administration of their facility. Generally, in so far as staff time permits, policies relating to consultation to agencies and professionals can be arranged to meet the needs of the particular agency and professionals. A few colleges have made some beginnings in cooperating with mental health centers for the welfare of their students, faculty, and community. The use made of the community mental health services available depends in large measure on the colleges and universities.

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CP + T

Newsletter

Chemotherapy of Tuberculosis—Part I: Typical Mycobacterium Tuberculosis—Primary Drugs

Prior to the discovery of streptomycin by Waksman in 1944, tuberculosis was an overwhelming public health problem with extremely high morbidity and mortality. In 1900, the mortality rate in the United States was 194/100,000 population. With the advent of nonspecific treatment aimed at enhancing host defenses, associated surgical procedures and patient isolation, the mortality in 1940 was 48/100,000. At the present time, treatment of tuberculosis is very effective but the disease remains an important public health problem since more than 10,000 people a year (6/100,000 population) die in the United States as a result of chemotherapy failure, including emergence of drug resistant tubercle bacilli.

Extent of Disease—The total extent and location of pulmonary lesions are decided from examination of chest roentgenograms.

Minimal disease includes lesions of slight to moderate density without cavitation involving a small part of one or both lungs.

Moderately advanced pulmonary tuberculosis includes small lesions which may be in one or both lungs (not including small miliary granulomas) throughout the total volume of one lung, or the equivalent in both lungs; dense and confluent lesions limited to one-third the volume of one lung. If cavitation is present, its total diameter must be *less than 4 cm.*

Far advanced lesions are all those more extensive than moderately advanced.

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

Status of Clinical Activity—The status of clinical activity is based on bacteriologic and roentgenographic abnormality.

Active pulmonary tuberculosis may be so classified on the basis of roentgenographic changes, at intervals of six months or less, suggestive of pulmonary tuberculosis; demonstration of tubercle bacilli in sputum, gastric aspirate, and tracheal aspirates; or complications including pleural effusion (with associated pleural biopsy demonstrating typical granulomatous change), tuberculous empyema, bronchial or pleural fistulae or active endobronchial tuberculosis.

Quiescent disease is a newly reinstituted term applied to a class intermediate between active and inactive. Bacteriology, after adequate examinations, is negative at least six consecutive months, and is associated with stable or slowly improving x-ray lesions. Cavitation may be present.

Inactive denotes constant and definite healing. Bacteriology must have been negative for at least six months with at least three nonchanging or slightly improving x-rays over a six-month period showing no evidence of cavitation.

Concepts of Chemotherapy; Primary Drugs—The "primary agents" used against sensitive typical Mycobacterium tuberculosis include isoniazid (INH), streptomycin, and p-aminosalicylic acid (PAS). These three antituberculous drugs are used in clinical situations which, in the preantimicrobial era, caused extensive morbidity and mortality.

Chemoprophylaxis for the Prevention of Tuberculosis—The Ad Hoc Committee on Chemo-

prophylaxis of the American Thoracic Society has recently recommended that certain persons have antituberculous chemoprophylaxis:

Isoniazid alone is generally used for chemoprophylaxis in a dosage of 300 mg per day for adults and 10 mg per kilogram body weight per day for children, not to exceed 300 mg per day, to be administered in a single daily dose for a period of twelve months.

Every positive reactor is at some risk of developing active disease. Thus, most persons found to have a reaction of 10 mm or more to the Mantoux test, using 5 TU of PPD, should receive chemoprophylaxis whenever they are identified.

For certain groups, chemoprophylaxis is mandatory. These groups include certain inactive cases, certain special clinical situations, contacts, tuberculin converters and positive reactors among young children and adolescents.

Inactive Tuberculosis. First priority for chemoprophylaxis should be given to persons with inactive tuberculosis. These include:

1. Ex-patients; persons who have had active tuberculosis and had no drug therapy or had inadequate drug therapy.

2. Persons with roentgenographic findings consistent with healed adult-type pulmonary tuberculosis and a positive tuberculin test. (Some persons over age 55 may react negatively to 5 TU of PPD, and a larger dose of tuberculin may be necessary to elicit a reaction.)

Special Clinical Situations. A person with a positive tuberculin test is in danger of activation or reactivation of tuberculosis in certain clinical situations. Such a person should receive chemoprophylaxis whether or not he has been treated with isoniazid before: (1) if he is placed on corticosteroid treatment; (2) if he undergoes gastrectomy; (3) if he has reticuloendothelial disease such as leukemia or Hodgkin's disease; or (4) if he has a period of instability of severe diabetes. In the case of a pregnant woman who has inactive tuberculosis previously untreated with chemotherapy, or who has roentgenographic shadows consistent with inactive tuberculosis, chemoprophylaxis should be started in the last trimester and continued for a year.

When measles or whooping cough develop in children with a positive tuberculin reaction they should receive eight weeks of chemoprophylaxis if they have been treated before; the course of chemoprophylaxis should be extended to 12 months if they have not received previous treatment.

Contacts. Contacts of recently discovered new active and reactivated cases of tuberculosis show a high incidence of this disease. Contacts should be examined and those diagnosed among the contacts as having tuberculosis should be reported and treated.

All household contacts of a reported active case of tuberculosis should receive chemoprophylaxis for 12 months if their reaction to the Mantoux test with 5 TU of PPD is 5 mm or more of induration. In such instances, a 5 mm reaction is most likely the result of exposure to tuberculosis and not a cross-reaction due to infection with atypical mycobacteria. Those household contacts who show negative Mantoux tests should be retested every three months until at least three months have elapsed since the last exposure. If the skin test converts, chemoprophylaxis should be instituted.

An alternative approach is to give chemoprophylaxis to all household contacts, including those with negative tuberculin tests. Positive reactors remain on the drug for the full course. Negative reactors should be retested three months after last contact with the active case. If the contact has been assuredly broken and if they are still negative to tuberculin, chemoprophylaxis may be discontinued. When exposure may be continuous it is desirable to give chemoprophylaxis to tuberculin negative contacts for as long as exposure continues. This may also be advisable in epidemics in closed groups and in situations in which it is impossible to retest the negative reactors at regular intervals.

Other Positive Reactors. In addition to the positive reactors just described, chemoprophylaxis should be given to the following reactors with normal chest films:

1. Converters: Known converters of all ages should receive chemoprophylaxis.

2. Certain positive reactors under age 20: Chemoprophylaxis is mandatory for positive reactors through the age of school entrance and for teenagers because of the relatively high risk attending tuberculous infection in these age groups.

Active minimal pulmonary tuberculosis is treated with INH in combination with PAS until it is known that the offending organism is not resistant, at which time INH may be used alone.

Active moderately advanced tuberculosis should be treated with INH in combination with PAS or streptomycin, or both. If streptomycin is used, it should be continued for 6-12 weeks (longer if there is resistance or intolerance to INH). INH should be used for at least 24 months. It is important that two or more drugs be used early when bacterial population is high in order to prevent emergence of resistant organisms.

In miliary, meningeal, renal, osseous, peritoneal, and far advanced pulmonary tuberculosis (including cavitary disease), it is customary to employ an intensive three-drug regimen for a period of two to four months followed by two years of therapy with two oral drugs.

Quiescent and inactive far advanced pulmonary tuberculosis with loss of pulmonary tissue, with or without residual cavitation, should be treated with continuous INH therapy.

Recently it has been suggested that antituberculous drugs may be given as a single daily dose rather than in divided doses.

Pharmacology of Primary Drugs

Isoniazid—Isoniazid is the most effective drug available for the chemotherapy of tuberculosis and is

either tuberculocidal or tuberculostatic *in vitro,* depending upon the growth medium and the concentration of drug. The standard conventional adult dose is 300 mg/day. It is most effective against organisms multiplying rapidly and is not active against resting bacilli. Death of the tubercle bacilli does not take place immediately following exposure. The organism must multiply at least once before inhibition occurs; acid fast staining of these second-generation bacilli may be lost. Intracellular tubercle bacilli are affected by INH as opposed to the other primary drugs. Bactericidal action is not known but INH inhibits vital tubercle bacilli enzymes and nucleoprotein synthesis.

Tubercle bacilli develop resistance to INH even more readily than to streptomycin. Individuals with more than minimal disease with high bacterial population rather quickly select resistant strains when treated with INH alone.

Side effects include peripheral neuropathy, dry mouth, dysuria, constipation, hyperreflexia, muscle twitching, vertigo, insomnia, and headache. Convulsive seizures may be precipitated in epileptic patients. Peripheral neuropathy may be abrogated by concomitant administration of pyridoxine, 25 to 50 mg daily. Undesirable side effects rarely occur at conventional doses.

Rarely, patients may have aberration of liver function, blood dyscrasia, psychosis, febrile reaction, dermatosis, lymphadenopathy, vasculitis, and rheumatic symptoms with associated "shoulder-hand syndrome."

Toxicity may be related to the capacity of various individuals to acetylate INH. Two major genetic groups have been identified. Those individuals who have higher plasma levels of free INH and excrete proportionately more INH and less acetyl INH in the urine are known as "slow inactivators" and may be more susceptible to toxic side effects. "Rapid inactivators" have lower plasma levels of free INH. INH antituberculosis treatment generally has not reflected significant differences in response between slow and rapid inactivators; however, there have been some reports of death in rapid inactivators with tuberculous meningitis with associated low cerebrospinal fluid levels of free INH.

p-Aminosalicyclic Acid—PAS is purely tuberculostatic *in vitro* and clinically has little effect when used alone. Its mechanism of action is unknown, but growth and multiplication of tubercle bacilli decrease and microbial oxygen consumption increases. p-Aminosalicylic acid competes with isoniazid for acetylation, and high plasma levels of free INH occur in patients receiving both drugs as compared to INH alone. PAS is given in conjunction with INH or streptomycin in an average dose of 12 gm/day. Preparations of sodium, potassium, calcium, and an injectable form of the sodium salt are available for therapy. PAS-C (Pascorbic) may be administered at one-half the usual dose of the sodium salt when G.I. irritation is severe.

The most common side effects of PAS are gastrointestinal irritation characterized by epigastric discomfort, nausea, vomiting, and diarrhea. Antacids may ameliorate these effects but may decrease absorption. The free sodium salt is less irritating than the free acid. The potassium salt may be used when sodium restriction is advantageous. Hypersensitivity reaction includes pruritus, rashes, and drug fever. Hepatic damage is the most severe form of hypersensitivity and is a definite contraindication to continued use. Otherwise, if PAS therapy is necessary, desensitization can be performed by administering gradually increasing oral doses. Hypersensitivity usually occurs within the first month of chemotherapy.

Streptomycin—Streptomycin exerts its bactericidal activity by inhibiting important bacterial enzymes, decreasing incorporation of amino acids into proteins (modification of messenger RNA affinity for bacterial ribosomes), combining with DNA and modifying the cell membrane. Cell membrane permeability modification has been suggested as the basis for synergism between other bactericidal agents; their entry into the bacteria is facilitated by streptomycin. The phenomena of bacterial drug resistance is poorly understood.

Streptomycin is not absorbed from the G.I. tract and is administered I.M., 1 gm once daily, for about six weeks in combination with the other primary antituberculous drugs.

It appears that the drug is excreted almost unchanged in the urine via glomerular filtration. When renal function is impaired, high levels of streptomycin will persist in the plasma.

The most frequent serious toxic effect of streptomycin is ototoxicity characterized by vestibular dysfunction which is associated with nausea, vomiting, vertigo, nystagmus, and ataxia. Vestibular damage is dose related. With a daily dose of 2 gm, more than two-thirds of patients treated 120 days developed labyrinthine damage; at a 1 gm dose, one-sixth of patients are affected. Ototoxicity is especially associated with impaired renal function. Elderly people are more susceptible than the young. Persons over 60 or with suspected renal dysfunction should receive ½ gram per day in order to minimize side effects. Rarely, tinnitus may precede auditory impairment.

Streptomycin is able to produce neuromuscular blockade which potentiates the action of curare. This complication is particularly devastating postoperatively in patients who have received curare or in patients with myasthenia gravis. This effect is antagonized by neostigmine-like drugs.

Mild side effects include circumoral and digital paresthesias, headache, dizziness, and scotomata.

Hypersensitivity is characterized by skin eruptions, urticaria, angioneurotic edema, exfoliation, drug fe-

ver, eosinophilia, or lymphadenopathy. Contact dermatitis often occurs among nurses handling streptomycin. Rare reactions include nephrotoxicity and bone marrow depression.

The most important role of streptomycin and PAS is to delay emergence of INH resistant strains during that phase of therapy when Mycobacterium population is high.

(Resistant typical Mycobacterium tuberculosis, atypical Mycobacterium, and the use of secondary antituberculous drugs will be discussed in the CP + T Newsletter in a future issue.)

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AAMC Urges Medical Schools to Reappraise Training for Family Practice

Medical schools should reappraise the training and function of the family physician within the framework of their own academic communities.

Such is the recommendation of a report published in the Communications Section of the June, 1968 issue of *The Journal of Medical Education,* the official publication of the Association of American Medical Colleges (AAMC).

The report was drafted last winter by a committee appointed by the Executive Council of the AAMC and chaired by Dr. Edmund Pellegrino, Director of the Medical Center, State University of New York.

A copy of the report is available by writing to the Association of American Medical Colleges, 2530 Ridge Avenue, Evanston, Illinois 60201.

In line with the Association's historic concern with the need for finding the best ways to deliver optimal medical and health care and the best modifications of educational programs to that end, the Executive Council of the AAMC has gone on record as urging the faculty of each medical school, and others interested, to thoughtfully consider points raised by the Pellegrino report.

According to the report, "The task of today's medical schools can be no less than the 'creation of the future' in the field of health care. To this end, they must apply to relevant social issues the same intellectual and practical resources they have applied so well to scientific questions, and, they must do so before the forces of change make the future too painfully obvious."

The study indicates that the recent series of reports on the state of comprehensive medicine and the general physician constitute a significant challenge to the medical schools of this country. Expressing a common opinion that, in our present system of medical care, there is a serious deficiency in the provision of comprehensive, personal and family health services, these reports recommend a redefinition and rehabilitation of the role of the general physician. The central responsibility of the medical schools in this reappraisal is also set forth.

In place of the recommendations of these findings, some of which are too specific and detailed, the AAMC Committee favors more diverse, flexible and experimental approaches specifically tailored to the environment and character of each medical school. These approaches place greater emphasis on the fact that patterns of future health care are likely to differ drastically from present models.

Any realistic and viable definition of the general physician, as set forth in the Pellegrino report, implies a serious effort to locate him within the framework of newer, more highly organized and institutionalized systems of care. Optimal use of non-physician manpower is also recommended.

Within any such system of medical care, there is certain to be increasing need for a general physician of some type who must be capable of establishing a profile of the total needs of the patient and his family. This evaluation should include social, economic and psychologic aspects as well as the more strictly "medical." An organization pattern of medical care must be devised which provides the supportive framework for such functions of the general physician.

The report also proposes that the matrix of medical care must be regionalized so as to provide differing levels and complexities of service in the smaller communities, the community hospital and the university medical centers. Communication between all elements of the system by computerization and centralization of clinical data, and the coordination of functions and personnel will be essential if the patient's needs as defined above are to be met in every community.

Cancer Page

Patient History

The patient was a 72-year-old white male. He had consulted his physician several times by phone, over a period of one year, for rectal bleeding and various suppositories were prescribed. When his physician was out of town, he called another physician regarding rectal bleeding. An examination was performed and a carcinoma of the rectum found by digital examination. Surgery was subsequently performed, but metastases were widespread and the patient experienced a progressive down-hill course and died.

Comment

The cause of rectal bleeding must always be determined before treatment is initiated.

The presence of hemorrhoides is not necessarily the explanation of rectal bleeding. Such patients should also have a sigmoidoscopic examination.

—Prepared by the Committee for Control of Cancer

The President's Message

DEAR DOCTOR:

What is the current "image" of the Kansas physician?

I don't know. Our patients could better answer that question.

I do feel that our image is constructed not of our skills, but of our availability when needed, our kindness, and our sympathy—the attributes which make our service a calling rather than a trade.

I propose that our availability is hampered by the exhausting obligations those of us in short supply try to crowd into each twenty-four hours. We begrudge the limitation of our time allotted for each patient just as much as do our patients.

I hope with some confidence that the derogatory magazine articles picturing a tattered image of the present day overworked physician are based on isolated instances of shabby medical service and do not represent a true sampling.

Among the major projects of the Kansas Medical Society this year is a candid and precise study in depth of any present unfilled or mismanaged areas of patient care with no attempt at rationalization or self-justification of our present practices.

We plan to show better avenues of service with our present resources.

Where medical manpower shortages prohibit any feasible fulfillment of the services outlined by unrealistic governmental promises, we plan to inform our patients loudly and clearly.

Where we are hampered in our constructive efforts by governmental restrictions, we will enlist our patients' support in our protests.

When faced with slanted plans by vested interests ostensibly designed to better utilize our limited pool of practicing physicians which, in the process, destroy the patient-physician relationship, we plan to show a better way.

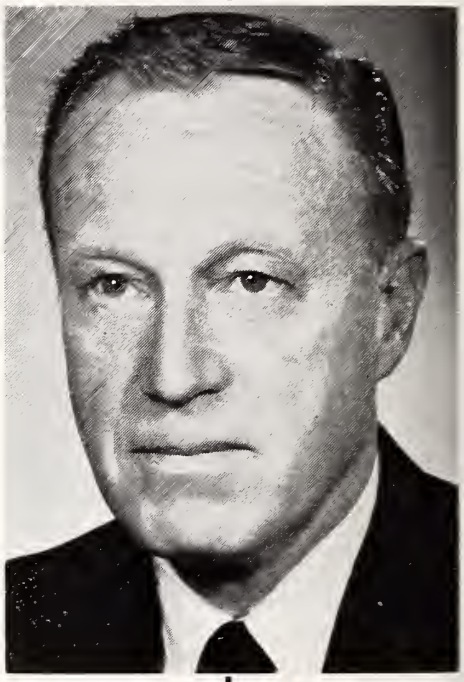
Where governmental waste occurs in medical projects, we will factually inform our patient-taxpayers.

With the righting of our correctible medical deficiencies and with the added efforts of our informed patients in those areas which lie beyond the scope of medical decisions alone, we can substantially improve the climate of patient care in Kansas.

I know our members will help in this gigantic effort.

I predict our members will view the efforts of their Society with pride.

Sincerely,



J. L. Morgan

President



Editorial COMMENT

Medicare—The First 18 Months

The Social Security Administration presented some figures relating to the operation of Medicare, Title XVIII, from July 1, 1966, to December 31, 1967. A short time ago the JOURNAL presented the Kansas experience. This is national and it represents one and one half years of experience.

Medicare covered payment, or partial payment, for 7.6 million inpatient hospital admissions. There were 400,000 extended care facility admissions and 350,000 home health care cases. Payment under Part A for these services was $4.3 billion.

About 28 million claims, mostly to physicians, were paid through Part B for a total of about $1.3 billion. Hospital cost in this program exceeds physician charges by more than three times. Part B accounts for just under 24 per cent of the Medicare expense, although more than three times the number of claims were paid under Part B than through Part A.

In another group of figures the administrative expense was presented. This represents the total operating cost for federal agencies and for fiscal intermediaries. In this tabulation the figures represent the first ten months of 1967. During this period 74 Blue Cross plans and 12 other fiscal intermediaries processed reimbursement for 10,468,000 bills through Part A, the hospital benefit portion of Title XVIII. Administrative cost was $76 million or 2.7 per cent of the $2.8 billion paid out.

Administrative expense for Part B, the medical insurance part of Title XVIII, for the same ten-month period were higher—$99 million. Fifty carriers handled 31,019,000 bills from physicians and suppliers. The administrative expense represents 9.5 per cent of the total.

The Social Security Administration concludes this bulletin with the following comments:

Administrative costs of the medicare program compare reasonably with those of the Blue Cross and Blue Shield Plans, taking into account that these programs have some expenses such as underwriting costs, which medicare does not have, but that medicare covers home and office visits and has other coverage for which there is a relatively high ratio of administrative to benefit costs. The latest data available for these private programs, based on 1966 operations, indicate that average administrative expenses for the Blue Cross Plans were approximately 5 per cent of the $2.9 billion they paid out for the hospital insurance benefits. Average administrative costs for the Blue Shield Plan for the same period were 10.6 per cent of the $1.2 billion claims expense for the period.

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

Wayne R. Demott, M.D.
Providence Hospital
Kansas City, Kansas 66102

Roy W. Hartley, M.D.
711 N. Norton
Norton, Kansas 67654

Lorman L. Hoopes, M.D.
Kansas State University
Manhattan, Kansas 66502

Gerald L. O'Connell, M.D.
7830 State Line
Prairie Village, Kansas 66208

Frederick A. Rice, Jr., M.D.
1854 Minnesota Avenue
Kansas City, Kansas 66102

Jon B. Holman, M.D.
8600 W. 95th Street
Overland Park, Kansas 66212

Title XIX in Kansas

HOME HEALTH AGENCIES

Again I wish to call your attention to this arm of the health care service which is available in many areas of Kansas, and through which improved health services may be rendered to many of our patients, be they covered under Medicare (Title XVIII), Medicaid (Title XIX), or private.

A Home Health Agency is an agency organized at the local level through the combined efforts of the providers of health services, predicated upon need certified by the Department of Health, Education and Welfare following the recommendation by the Medical Services Division of the State Board of Health. The goal of the agency is to provide needed health services on an intermittent basis to a homebound patient who no longer requires the more sophisticated services of a general hospital or an extended care facility. The services so rendered must be under the prescription of a physician or dental surgeon, and the need for continuing such services must be periodically reviewed by him.

A Home Health Agency, in order to be certified, must be able to provide intermittent nursing service, and at least one of the following services dependent upon available trained personnel.

1. Home Health Aide—(This is not a homemaker service, but it is more in the category of the services provided by a nurse aide in the hospital).
2. Medical Social Worker.
3. Physiotherapist.
4. Occupational Therapist.
5. Speech Therapist.

To become certified an agency must have a full-time registered nurse. The other personnel may be full time or part time, depending both upon their availability and the need for their services. The agency may also provide medical supplies other than drugs or biologicals, medical appliances, and durable medical equipment. In instances where such equipment is not transportable, payment through the agency may be made for services on an outpatient basis in departments of physiotherapy, etc. However, there is no provision for payment of transportation of the homebound patient to the treatment facility.

Benefits under Medicaid (Title XIX) are available only for services that are

medically necessary and when such services are prescribed by a physician or an oral surgeon. Prior hospitalization is not required. There is no limitation to the number of visits so long as they are medically necessary as determined by periodic review by the physician. When the services are conducted concurrently with Medicare (Title XVIII), Medicaid pays the deductible and the co-insurance and then continues to pay the entire cost when Medicare benefits are exhausted. For those categories of welfare patients not covered by Medicare, Medicaid assumes the entire obligation.

At the present time there are 29 Home Health Agencies certified in Kansas. Geographically, they are widely distributed. The utilization pattern of the agencies does not seem to follow population density, but seemingly follows the degree of interest manifested by the practicing physicians of the area. For example, although Saline, Shawnee, Sedgwick and Wyandotte are among the more populace counties and have a reasonably consistent pattern of utilization, Cloud, Harper, Labette, Lyon and Pratt counties have had quite effective utilization.

The development of an effective Home Health Agency is centered around the participation and interest of the physicians of the community, coupled with the initiative and interest of the other professional personnel available. Unless the initiative of all the professionals involved is on a continuing basis, a Home Agency cannot be effective.

In our rapidly expanding population, the development of efficient Home Health Agencies and the subsequent utilization of the available services cannot only relieve our overburdened general hospitals and extended care facilities, but also furnish a psychological climate to facilitate the returns of our patients to a state of improved health.

May I urge you, as physicians, to investigate the range of services that are offered in your community by the currently established Home Health Agencies. However, if such services are not available, and a need for an agency can be determined, I would urge you to participate in the organization and development of a new Home Health Agency, or the expansion of services in an existing agency. Such endeavors can be rewarding to you, not only in the services that you render to your own patients, but also the health and welfare of your community as a whole.

LUCIEN R. PYLE, M.D.
Medical Coordinator to Social Welfare

University of Kansas Medical Center School Health Symposium Program

October 3-4, 1968

DRUGS, ALCOHOL, AND SMOKING—THE SCHOOL SCENE

THURSDAY, OCTOBER 3

Presiding: Charles Lewis, M.D.

9:00 a.m. Opening Remarks—George Wolf, Jr. M.D., Dean and Provost Kansas University Medical School
9:15 a.m. The Cultural Impact on Youth—Tom Gillette, Ph.D., Sociologist, Western Behavioral Science Institute
10:00 a.m. LSD, Pot, *et al.*—Psychological Factors in Their Use—Kenneth Godfrey, M.D., V.A. Hospital
10:35 a.m. Coffee
10:50 a.m. Kansas—A Drug Study—Glen Hastings, M.D., University of Illinois
11:20 a.m. Pharmacogenetics of Drugs—Edward Walaszek, Ph.D.
11:50 a.m. Panel—Gillette, Godfrey, Hastings, and Walaszek
Moderator—Dr. Merle Bolton, Superintendent of Schools, Topeka
1:00 p.m. Lunch

Presiding: Dr. Merle Bolton

2:00 p.m. The Teenager and Alcohol—Evalyn S. Gendel, M.D.
2:30 p.m. The Sociology of Booze and Drugs—Dr. Tom Gillette
3:00 p.m. LSD and Alcohol—Dr. Godfrey
3:30 p.m. Break
3:50 p.m. Panel: Students in the Health Professions and Their Friends
Moderator—Dr. Tom Gillette

FRIDAY, OCTOBER 4

9:00 a.m. Smoking Since the Surgeon General's Report—Roy Davis, Clearinghouse on Smoking and Health, Arlington, Virginia
9:25 a.m. Psychological and Other Factors and Smoking—What We Know —Dan Horn, U.S.P.H.S., Arlington, Virginia
10:00 a.m. The School Scene—Richard Foster, Ph.D., Superintendent, San Ramon District, Danville, California
10:35 a.m. Coffee
10:50 a.m. Education and Smoking—Leon S. Lessinger, Ed. Dept., U. S. Commissioner of Elementary and Secondary Ed., Office of Education, Washington, D. C.
11:20 a.m. Interrogation—Dr. Tom Gillette
11:45 a.m. Panel—Foster, Horn, Lessinger, Gillette
Moderator—Roy Davis
1:00 p.m. Adjourn

American Medical Association

Summary of Actions of the House of Delegates, 117th Annual Convention, June 16-20, 1968, San Francisco

Summary

THE AMA HOUSE OF DELEGATES was in session for 13 hours and 42 minutes, ending at 10:50 a.m., June 20. It faced 143 items of business, including 84 resolutions; 39 reports from the Board; 7 from the Council on Constitution and Bylaws; 4 from the Council on Medical Education; 5 from the Council on Medical Service; 2 from the Judicial Council and 2 special reports.

Fourteen of the items were accepted or approved for information; 62 were adopted, approved or accepted; 31 were referred to the Board or a Council or Committee; 20 were replaced by substitute resolutions; 10 were rejected; 2 were postponed to the next meeting of the House; 1 was tabled; and 3 were withdrawn. Following are some of the actions taken:

Health Care Costs and Financing

A resolution was adopted that "the principle of graduated income tax credits for premiums paid for adequate health insurance be adopted as approved policy of the AMA."

Another adopted resolution urged all state and local societies "to act swiftly and firmly in all instances of known exploitation and excessive charges for health care that may occur in their jurisdictions."

A Board report on the economics of health care, adopted by the House, pointed out that the Board "has approved a committee recommendation that a technical evaluation of the full potentialities of the AMA in the field of economics of health care be carried out by a small advisory group of competent, nationally recognized economists. It is expected that this will be done promptly."

In the area of reducing costs to patients, the House adopted a resolution that "the AMA endorse the principle of voluntary health insurance coverage for outpatient x-ray and laboratory services acceptable to the hospital and its medical staff wherever performed prior to a scheduled hospital admission"; and adopted another resolution that "all insurance companies and fiscal intermediaries" adopt and authorize the use of standard forms in conjunction with a single hospital admission to save physicians' time and expense.

With respect to physician time, the House recognized "the excellent contribution made to the continuing education and improvement of physicians' knowledge by many methods of medical meetings, scientific conferences and critical review of clinical experience," but pointed out that these must "be contained within the physician's available time" and urged "continued experimentation in methods that would . . . conserve the physician's time and thus improve the quality of patient care."

Legislation and Relationship With Government

Regarding comprehensive health planning, the House adopted a Board report recommending that "the House of Delegates urge those states which have not held informational conferences on the subject to conduct orientation conferences in order to reach a greater number of leaders at the local level." The report pointed out that, "The Department of Hospitals and Medical Facilities has mailed periodically to each state medical association packets of pertinent references on PL 89-749 and PL 89-239 . . . and . . . the Board has authorized development of a 'Handbook on Prototypes of Community Planning for Health Services' based in part on field surveys."

Also adopted was a Council on Medical Service report on comprehensive health planning which recommends that "The AMA and the constituent and component societies give unstinted, diligent attention to the process of comprehensive health planning which, at present, places priority on local initiative and decision-making, and that the AMA at all levels endeavor to assure through all appropriate means, a system of checks and balances so that state and area planning agencies are not given authority to subordinate local planning efforts and dictate local decisions on health planning."

Two resolutions concerning comprehensive planning were combined to state the House's will that "medical societies encourage the organization of local health planning councils without the assistance of HEW grants."

The House also expressed its will that "The society should use some mechanism such as a nonprofit cor-

poration or other entity, separate from the society itself and served by an independent administrative staff, where possible, to avoid direct operational involvement of the medical society as a body."

To strengthen the AMA's continuing liaison with the federal government on matters of health legislation, the House adopted a statement that because "the private practicing physicians are the best qualified group in matters pertaining to health services," the AMA should "request the Secretary of HEW to continue to solicit the advice and counsel of those practicing physicians designated by their medical associations at the local, state and national level in formulating future plans and programs and in modifying existing programs, in order to provide the best quality health care to the people of the United States."

Three resolutions were introduced objecting to the government's support of group practice, particularly the prepayment type. They were combined into one substitute, "Resolved, that the AMA continue to espouse the private, fee-for-service practice of medicine; and be it further resolved that the AMA strongly disapproves of the provision of funds by the federal government for subsidizing any one form of organization of medical practice."

In that connection, the House referred to the Board a resolution that the Board set up "a national forum on the solo practice of medicine for the purpose of examining the need for this type of physician care, public preference between solo and group practice and how solo practice should be encouraged."

In addition, the House reaffirmed "previous policies requesting that all efforts be made a eliminate recertification requirements under Medicare and called on the congress "to amend the laws and regulations pertaining to PL 89-97 to specifically permit direct billing to all Title 19 recipients."

The House also resolved that "The Board . . . take appropriate action seeking the establishment of a separate Department of Health headed by a Doctor of Medicine."

Finally, in this category, the House resolved to call to the attention of state governors and other state and local officials "that the maintenance of medical treatment facilities and the care of all patients and hospital personnel in the event of a disaster is of prime and basic importance" and that "preliminary planning to provide such protection be a part of every disaster program."

Manpower

In response to a report from the Board, a Council on Health Manpower was created by the House, to assume the functions and responsibilities of the former Committee on Health Manpower and the former Commission on Relationships Between Medicine and Allied Health Professions and Services.

With respect to relationships and negotiations between the AMA and the osteopaths, the House accepted for information a Board report which stated, "In the absence of coopertive leadership on the part of the practicing osteopaths and ostopathic educators, accomplishments by the AMA are rendered difficult. Such leadership was forthcoming in California, and is now needed elsewhere. When this osteopathic leadership is developed, the AMA stands ready to cooperate to its utmost."

The House approved a Board report reviewing studies of the status of foreign medical graduates in the United States and directing the new Council on Health Manpower to take the steps necessary to complete plans for the organization and financial support of a commission, to be established outside of government, to coordinate fully all of the issues and activities involving FMG's.

Education, Medical and Allied

The House approved a Board report urging "that the constituent and component societies of the Association make every effort to insure that additional financial support for medical schools be obtained from all available sources. The Board and the Council (on Medical Education) further urge that all physicians individually recognize their debt as graduates of medical schools . . . by contributing regularly and generously to the financial support of medical schools through the 'Fund for Medical Schools' project" of the AMA-ERF and other appropriate channels.

Also referred to the Board was a resolution to establish a joint commission on accreditation of nursing schools, with participation by the AMA, AHA, ANA and National League for Nursing.

The House resolved to urge the Board "in its selection of nominees for the Council on Medical Education to give full recognition to the importance of non-university affiliated hospitals in providing effective educational experience"; and referred to the Board and its Council on Health Manpower a resolution that the AMA "establish guidelines for the benefit of constituent and component organizations in dealing with new, as well as emerging paramedical disciplines as they come into being."

Another resolution referred to the Board related to the JCAH ruling with respect to the use of externs, under proper supervision, for recording history and physical examinations on patients' charts in non-university affiliated hospitals.

Infant Mortality

The House approved a statement on infant mortality prepared by the Committee on Maternal and

Child Welfare of the Council on Medical Service and submitted by the Board. The report included a number of recommendations, among which were these:

"Recognizing the fact that unfavorable environmental and socioeconomic factors as well as medical factors are involved in infant mortality, the medical profession should support all constructive community efforts for the improvement of living conditions among the needy.

"The AMA should inaugurate and support programs of health education, including good maternal and child health practices, family life and sex education and the appropriate use of health care resources.

"The AMA should give impetus to broad and inclusive programs for the care of the unwed mothers."

With respect to statistics, the AMA "should provide leadership in a program to obtain national uniform registration statutes for births and deaths . . . promote efforts through the World Health Organization and other authoritative bodies to bring about uniform registration requirements and . . . truly comparable statistics . . . and support educational programs directed toward physicians concerning the value of accurate uniform reporting."

Regarding quality and availability of care, "State and component societies should evaluate existing maternal and child care resources and take leadership in the expansion and development of programs for delivering services in locations found to be deficient."

The report urged that, where feasible, "perinatal death studies be conducted on a communitywide basis or by a hospital staff or medical group for the purpose of reducing infant mortality and providing educational programs"; and also recommended that the AMA "stimulate research into the cause and possible prevention and control of 'crib deaths' of infants."

Transplantation and General Thoughts on Patient Care

A Judicial Council report was adopted on "Ethical Guidelines for Organ Transplantation." One of several important guidelines was, "When a vital, single organ is to be transplanted, the death of the donor shall have been determined by at least one physician other than the recipient's physician. Death shall be determined by the clinical judgment of the physician. In making this determination, the ethical physician will use all available, currently accepted scientific tests."

A Council on Medical Service report on automated multiphasic screening, approved by the House, pointed out that tests used in "a multiphasic screening program should be relatively simple to administer, easy to interpret, relatively inexpensive and require little time to perform." All such screening programs should be subjected to the five criteria suggested by the former National Commission on Chronic Illness: Reliability; validity; yield of information; cost; and acceptance by physicians, individual laymen and the community.

The House adopted a Board report recommending AMA support for the use of the Slow-Moving Vehicle Emblem developed by Ohio State University for all vehicles, tractors, construction equipment or horse-drawn vehicles moving less than 25 miles per hour.

By adopting a Board report, the House voted to "participate in a program of planning and action with other organizations concerned with architectural barriers to the handicapped" and requested state and county medical societies to encourage their members to become active in helping to alleviate such barriers.

Hospitals

A resolution was adopted that "state medical associations and state licensing and certifying agencies establish and maintain close surveillance of the certification and accreditation problems of small hospitals," which generally are not acceptable for Medicare patients, thereby denying benefits of the law to many persons among the rural aged.

Noting that new Standards for Hospital Accreditation are under way by the JCAH, the House resolved that the Board "direct the AMA Commissioners of the JCAH to arrange for the tentative draft of the new standards to be submitted to individual state associations for comment before final adoption."

The House again urged "that adequate representation of the medical staff on the voting membership of the hospital's governing body is the most effective mechanism for assuring a working communication, provided that the physicians serving on the governing board be nominated by the medical staff of the hospital."

Public Relations

A Board report was adopted that reproduced a statement by the AMA's public relations counsel, Mr. Philip Lesly. Titled "Considerations for Coping with the New Climate Involving Health Care," the Statement pointed out many problems faced by the medical profession and urged that the "foundations of public relations for the profession" must be:

Practical—viewing each circumstance in terms of the consequences of any action or position.

Positive—AMA should be the leader of action and thought on medicine; not in the position of reacting to the actions or statements of others.

Anticipatory—AMA should be the master of change rather than its victim.

On the Initiative—fostering balanced, informed, widespread coverage of medicine and health care rather than to matters initiated by others.

Augmented by voices of respected laymen.

Selective—concentrating on activating AMA's programs and priorities, with full knowledge it will mean passing up many things that appear to need attention but are not part of the over-all constructive plan.

AMA Financial Status

The House accepted for information a Board report concerning "the fiscal uncertainties which lie ahead" for the AMA. It is anticipated, the report said, "that a substantial increase in the budget of the AMA will be necessary within the next few years if the AMA is to fulfill its mission. Major items such as the cost of printing and paper are rising sharply and the pressure of inflation has greatly increased the cost of providing AMA's normal services."

The report stated that the tax effect of the IRS regulations is not known at this time on the AMA's gross income of approximately $13 million annually from advertising in its publications before deduction of costs and allowable expenses.

The report pointed out that the Board "is not recommending an increase in dues . . . at this time, because it wants additional information regarding various matters affecting our financial situation before reaching such a decision."

Interruption

An interruption in the proceedings came Sunday afternoon during the opening session when two men seized a microphone in front of the podium and insisted on addressing the House.

One was a senior medical stduent from Stanford, representing the Medical Committee on Human Rights; the other a welfare worker and official of the Bay Area Poor People's Campaign. Speaker Bornemeier maintained order while the two men took turns speaking for a total of 13 minutes.

Tuesday, a written statement was presented to Speaker Bornemeier setting forth the objectives of the Medical Committee on Human Rights. He read it to the House as a matter of information.

JOHN C. MITCHELL, M.D.
LUCIEN R. PYLE, M.D.
Delegates from Kansas

SEDGWICK COUNTY SURVEY

The Public Health Service's Health Examination Survey, authorized by Congress in 1956, will visit Sedgwick County in October 1968 to examine a sample of the teen-aged population (ages 12 through 17 years). The Survey will be conducted during the period October 4 through November 15, 1968. This will be a part of a series of examinations of a nationwide health survey of some 8,000 youngsters.

About 200 youths to be examined will be chosen by a scientific sampling process from the 12-through-17-year population of Sedgwick County.

The examinations will be given in the Health Survey's mobile examination center, which will be brought to the area in mid-October and set up at a convenient location.

Purpose of the examinations is to collect on a uniform basis statistical information on various aspects of the health of the youngsters and to obtain data on certain physical and physiological measurements relating to growth and development in this age group.

The process will include a special examination by a physician of the eyes, ears, nose and throat, heart and neuromuscular systems; a dental examination by a dentist; a test of visual acuity and color vision; recordings of blood pressure; biological and biochemical tests of a blood sample; an audiometric test for hearing performed in a soundproof room; an x-ray of the chest for cardiovascular and pulmonary abnormalities; a 10-lead electrocardiogram and phonocardiogram of the heart; a time vital capacity test using a wedge spirometer; an exercise tolerance test under a measured workload using a treadmill; a gripstrength test; recordings of height, weight, and various other measurements of growth and development; and measurements of verbal, perceptual, and social skills by a psychologist.

The Health Examination Survey is designed to collect data primarily on the health aspects of growth and development. The Survey is not intended as a screening procedure; referral for diagnosis is not made. The fact that the examination is not complete and is not a substitute for a visit to one's own physician and dentist is stressed with the parents of each youth examined. No part of the results of the examination, except for a card stating the blood type, will be disclosed to the youth or his parents. A report of relevant findings will be sent to the youngster's physician and dentist when the parents request that this be done.

The examining physicians will be senior residents or fellows in pediatrics working temporarily with the Public Health Service. Other members of the examining team will include a nurse, a dentist, two psychologists, and x-ray and other technicians regularly with the PHS staff.

This health examination of youths is referred to as the Third Cycle of the Health Examination Survey. Earlier, a Second Cycle of the children's health

(Continued on page 462)



Personalities—IN KANSAS MEDICINE

Kansas physicians participating in the People-to-People Goodwill Mission for 1968 left the middle of July for a three-week tour of the Soviet Union and Northern and Eastern Europe. Delegation hosts for the medical fact-finding tour were **Dr. and Mrs. George E. Burket, Jr.** of Kingman. Members of the tour included Clair C. Conard, Dodge City; **Jack Randle**, Bucklin; **Dr. and Mrs. Lawrence Leigh**, Prairie Village; **Dr. and Mrs. Ernest G. Neighbor**, Shawnee; **Dr. and Mrs. Galen W. Fields**, Scott City; **E. F. Steichen**, Lenora; **L. W. Patzkowsky**, Kiowa; **Norman G. Marvin**, Syracuse; **Dr. and Mrs. Virgil E. Brown**, Sabetha; **Dr. and Mrs. William Lentz**, Topeka; **Dr. and Mrs. James Basham**, Fort Scott; **Dr. and Mrs. Floyd C. Beelman**, Topeka; **Dr. and Mrs. Edward Brinton**, Wichita; **Dr. and Mrs. A. A. Fink**, Topeka; **Dr. and Mrs. Robert Moore**, Caney; **Lloyd W. Reynolds**, Hays; **Cyril V. Black**, Pratt; **Leland Glaser**, Hutchinson; **William G. Rinehart**, Pittsburg; and **Garland Campbell**, Arkansas City.

O. L. Hanson, chief surgeon at the Atchison, Topeka and Santa Fe Hospital in Topeka, was recently appointed medical director for the Santa Fe Railway System, with headquarters in Chicago. The Hansons will continue to live in Topeka for the present.

Rolando Rodriguez, chief of the Department of Community and Preventive Psychiatry at Osawatomie State Hospital presented a paper entitled, "A Cultural View of Patients with Drinking Problems in the State of Kansas," at the International Congress on Mental Health which met in London in August.

Two new appointments were made in August at the Santa Fe Hospital in Topeka. **R. M. Brooker**, Topeka, is the new chief surgeon for the Santa Fe Memorial Hospitals Inc. and for the Santa Fe Employe's Benefit Association. Dr. Brooker, who succeeds Dr. O. L. Hanson, will be in charge of medical and surgical services for active railway employes and former employes. **Margaret L. Shiney**, Topeka, has been appointed chief of medical services and will direct medical services for outpatients and for patients receiving treatment at the hospital.

LaVerne B. Spake, Kansas City physician and instructor at the University of Kansas Medical Center, announced his retirement August 1.

John Lathrop has moved from Concordia to Scott City where he has joined the staff of the Scott City Clinic.

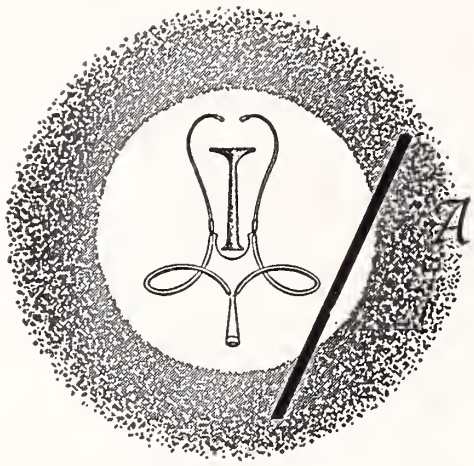
Miss Kansas of 1968 is Jane Kathryn Bair, daughter of **Dr. and Mrs. Howard V. Bair**, Parsons. Miss Bair, who attends Pittsburg State College, will represent Kansas in the Miss America contest in Atlantic City.

Robert L. McCorkle, LaCrosse, attended a postgraduate study course at the University of Colorado Medical Center in July.

Wilmer Harms left Hesston in the middle of August to begin a three-year course as a specialist in ophthalmology. He will study at the Harvard University Medical School and Johns Hopkins Eye Institute, and then enter residency training in Oklahoma City.

A. C. Eitzen and **H. F. Janzen** were honored by the staff of Salem Hospital of Hillsboro in July. An open house coffee was held honoring them for a total of 75 years of medical practice in Hillsboro. Dr. Eitzen has practiced there for 45 years and Dr. Janzen for 30 years.

(Continued on page 461)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

SEPTEMBER

Sept. 18-20 — National Cancer Conference, sponsored by the American Cancer Society and National Cancer Institute, Denver Hilton Hotel, Denver. Write Roald N. Grant, M.D., Coordinator 6th National Cancer Conference, c/o American Cancer Society, 219 E. 42nd St., New York 10017.

Sept. 20-27 — Combined scientific meeting, International Congress of Neurology and International Congress of Neurological Surgery. New York Hilton Hotel. Write: World Congresses of Neurological Sciences, 420 Lexington Avenue, Suite 417, New York City 10017.

Sept. 25-27 — *Problems Affecting the Cerebral, Renal and Peripheral Circulation,* presented by the Council on Clinical Cardiology of the American Heart Association, and the Cleveland Clinic Foundation, Bunts Auditorium, Cleveland, Ohio. For information write Council on Clinical Cardiology, American Heart Association, 44 E. 23rd St., New York 10010.

Sept. 27-28 — Symposium on *Cardiovascular Disease,* sponsored by the Kansas Heart Association in cooperation with the Great Plains Heart Associations, the Council on Clinical Cardiology, and American Heart Association. Sheraton-Ritz Hotel, Minneapolis. Write: The Minnesota Heart Association, 1821 University Avenue, St. Paul, Minnesota 55104.

Sept. 28-Oct 3 — International College of Surgeons, 33rd annual congress of the North, Central American and Caribbean Federations and first joint meeting with the South American Federation, Honolulu. For information write the International College of Surgeons, 1516 Lake Shore Drive, Chicago 60610.

OCTOBER

Oct. 5-6 — Second National Congress on Medical Ethics, sponsored by the Judicial Council of the AMA, Drake Hotel, Chicago.

Oct. 7-9 — 46th Annual Fall Clinical Conference, Kansas City Southwest Clinical Society, Hotel Muehlebach, Kansas City, Missouri. Write: Kansas City Southwest Clinical Society, 3036 Gillham Road, Kansas City, Missouri 64108.

Oct. 9-11 — 15th Western Cardiac Conference, University of Colorado Medical Center, Denver. For information write the Colorado Heart Association, 1375 Delaware St., Denver 80204.

Oct. 21-23 — 75th convention of the Association of Military Surgeons, Sheraton-Park Hotel, Washington, D. C. Write the Association of Military Surgeons of the U. S., 1500 Massachusetts Ave., N.W., Washington, D. C. 20005.

Oct. 21-25 — 19th annual session, American Association for Laboratory Animal Science, Las Vegas. Write Dr. W. H. Dieterich, Animal Resources, Inc., Box 34, Woodsboro, Maryland 21798.

POSTGRADUATE EDUCATION

University of Kansas:

Oct. 3-4 — ***School Health***

Oct. 15-16 — ***Medicine and Religion***

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

Sept. 30-Oct. 4 *Hospital Medical Staff Conference* (Estes Park)

Oct. 7-11 *High Risk Infant Care* (Limited)

Oct. 28-30 *Workshop on Respiratory Insufficiency* (Limited)

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

Oct. 18-19 *Hypertension* (Lincoln)

Oct. 24 *Medical Secretaries Institute*

For further information write The Department of Postgraduate Education, University of Nebraska Medical Center, Omaha, Nebraska.

Oct. 9-11 *Clinical Electrodiagnosis of Neuromuscular Diseases,* New York University Postgraduate Medical School, 550 First Ave., New York City 10016.

Oct. 31-Nov. 2 Annual course in *Gastroenterology* sponsored by the American College of Gastroenterology, Statler Hilton Hotel, Boston, Massachusetts. For further information write the American College of Gastroenterology, 33 W. 60th St., New York, New York 10023.

Personalities

(Continued from page 459)

Wayne G. Parker, Oberlin, left in July for a Vietnam Assignment with the U. S. Agency of International Development. Dr. Parker's first assignment with the USAID will be at Nha Trang, where he will be a member of a public health team.

William St. Clair, who was called from his medical practice in Downs last year to serve as an army doctor, is now stationed in Vietnam.

Richard J. Taylor was recently appointed director of the Department of Pathology at St. Francis Hospital in Wichita. Prior to his appointment, Dr. Taylor was associate pathologist for St. Joseph Hospital and Rehabilitation Center, Wichita.

AMA POSTURE ON PUBLIC COMMENT

The Board of Trustees of the American Medical Association is cognizant of the great increase in attention being given in the press and broadcast media to medicine and health care. Our profession is now the focus of one of America's greatest interests. It will constantly be in the spotlight, ending the professional reticence and privacy in which medicine functioned most of the time in the past. Even though this interest is a tribute to the importance of medicine and the public's desire for its benefits, it brings with it the problems facing any person or organization with a key public position: much of the coverage is critical or displays a lack of understanding.

The Board of Trustees has consulted with AMA staff and public relations counsel on this increasingly important situation. The conclusions that have resulted from this intensive and thoughtful consideration are submitted now:

1. When statements about medicine are misguided or unfair, corrective statements will be issued promptly when the facts are available and an orderly response is possible.

2. We must recognize that the prominence and complexity of medicine in the United States today result in many limitations. Medicine is a constant subject of news and comment, much of which cannot be subject to a later response. Often our replies cannot be carried by the broadcast medium or publication, or at best will be much less prominent than the original coverage. Quite often a responsible statement cannot be issued until the facts have been obtained, and these may be scattered about the country or involve a local situation or require a great deal of time.

3. The frequency and complexity of these matters have increasingly diverted the officers and staff of AMA to reacting to what others do and say. This decreases the ability to work on constructive, ongoing activities that are vital to our future.

4. Staff is developing in written form the best possible anticipatory statements regarding all foreseeable circumstances. By having such matters thought out and documented when a need arises, we will be able to reduce the instances of surprise, decrease the time required for response, and assure consistency in AMA statements on these matters.

5. We will concentrate on building a positive posture by getting understanding for medicine's functions and its positions on various considerations; and by educating the press, broadcasters and opinion leaders. This will help forestall much misguided criticism and build a favorable climate that will inoculate against susceptibility to unfair criticism.

6. All state and county medical societies are urged to follow these same procedures.

You will see many instances in which AMA responds to public comment, many in which we have acted but our effectiveness will be in correcting the source and may not be visible immediately, and instances when judgment indicates a response should not be made. In each case the best judgment and skills will have been applied to the complexities of the situation.

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in June, 1968 and 1967

Diseases	June 1968	June 1967	June 5-Year Median 1964-1968	January-June Inclusive 1968	January-June Inclusive 1967	January-June Inclusive 5-Year Median 1964-1968
Amebiasis	1	1	1	5	6	5
Aseptic meningitis	—	—	—	—	—	—
Brucellosis	—	—	—	2	—	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	1	1	1	5	3	5
Encephalitis, post-infec.	1	1	*	6	1	*
Gonorrhea	283	282	283	1,878	1,907	1,531
Hepatitis, infectious	60	19	22	205	91	205
Measles (Rubeola)	—	*	*	8	*	*
Meningococcal meningitis	2	1	2	16	7	9
Mumps	14	*	*	701	*	*
Pertussis	—	—	—	—	3	8
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	1	—	—	2	2	2
Rubella (German Measles)	5	*	*	113	*	*
Salmonellosis	25	27	17	98	95	95
Scarlet fever	1	2	2	26	52	58
Shigellosis	2	7	7	29	18	34
Streptococcal infections	29	179	102	1,539	1,608	1,539
Syphilis	115	127	115	547	576	547
Tinea capitis	2	—	1	29	30	29
Tuberculosis	24	22	22	118	132	132
Tularemia	—	2	—	1	9	2
Typhoid fever	1	1	—	—	1	1

* Statistics not available.

MALARIA SURVEILLANCE—1967

Malaria in the United States in 1967 was characterized by a marked increase of imported cases due to the return of military personnel from Vietnam. A total of 2,815 cases was reported, as compared with 678 cases in 1966, and 156 in 1965. All but 186 of the 2,815 cases had acquired their infection in Vietnam.

Plasmodium vivax was the predominant parasite species, accounting for 81 per cent of the infections. *P. falciparum* was identified in 13 per cent of the cases.

During 1967 in Kansas, 29 cases of malaria were reported. An additional 33 cases have been reported during the first six months of 1968.

Despite the large number of imported cases, little evidence of spread in the United States was observed. Only two introduced cases and one case of post-transfusional malaria could be related to individuals who had acquired their infection in Vietnam. Four other cases were infected in the United States, including two infections following blood transfusion, one case of congenital malaria, and one isolated case in which the source of the infection could not be determined.

Two fatal malaria cases, both due to *P. falciparum*, were reported in the United States in 1967.

Sedgwick County Survey

(Continued from page 458)

examinations (ages 6 through 11 years) was completed in December 1965. Over a 30-month period, 7,129 children were examined in 40 locations across the nation. A First Cycle of adult health examinations, ending in 1962, completed a three-year survey and examined a total of 6,672 adults (ages 18 through 79 years).

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*brand of sustained-release capsule

†Parsons, P.L., Withey, J.L., and Kilpatrick, G.S : Practitioner 195:656, (Nov) 1965.

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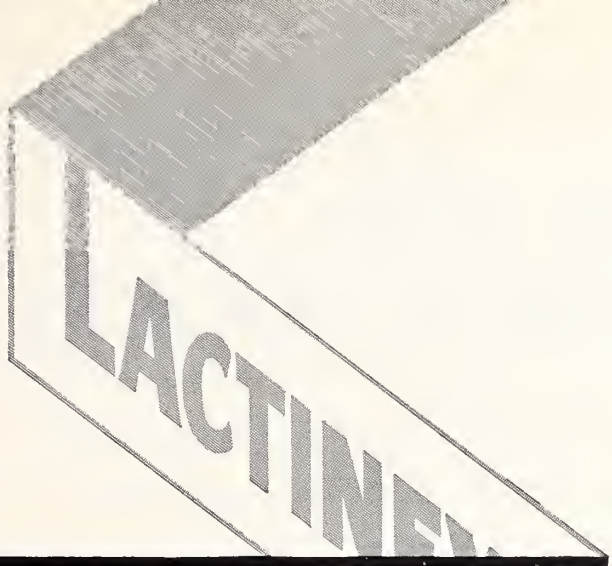
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No untoward side effects have been reported to date.

Literature on indications and dosage available on request.

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Volume LXIX, Number 10—October, 1968

The JOURNAL of the KANSAS MEDICAL SOCIETY

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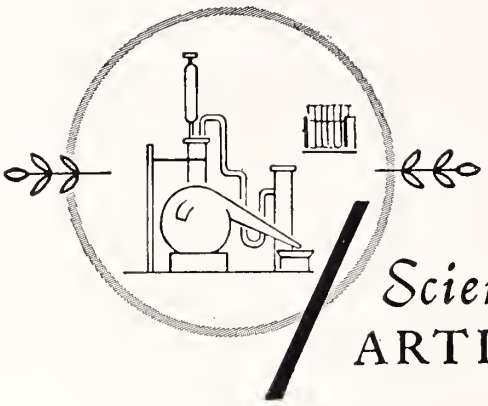
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Special Issue

Southwest Allergy Forum

This issue of the Journal contains papers presented at the meeting of the Southwest Allergy Forum, on May 16-18, 1968. They are presented here principally by virtue of the efforts of Dr. Curtis C. Drevets, who collected them for the Journal. The Editorial Board is pleased to be able to present them to you, and does so with assurance that the papers will be interesting to many.

—Editor



Scientific
ARTICLES

Mold Allergy—

Clinical Use of Emulsified Mold Allergens

HOMER E. PRINCE, M.D., ***Crockett, Texas***

My remarks will be more meaningful if I tell you that in East Texas 29 per cent of persons with allergic diseases caused by inhalant allergens are sensitive to molds.[1, 2] Furthermore, almost without exception patients sensitive to molds are also sensitive to other allergens as pollens, dusts and danders; during the last several years I have seen but one patient sensitive only to molds. Because patients in this area are exposed to molds perennially and to pollens for 9 to 11 months of the year,[2] they ordinarily give no typical history pointing to molds. I have found that treatment must be directed perennially against molds, and must include coexistent pollen and environmental allergens as well.

Emulsified mold allergens were first employed in my practice in late 1960, first for patients under control by conventional aqueous injections. The results were immediately so spectacular that for subsequent patients I ventured to use emulsion injections without prior treatment with aqueous mold allergens. My experiences with both the earlier transitional patients, and subsequently with new patients placed immediately on mold emulsion treatment, have permitted conclusions for initial and maintenance dosage, interval between injections, and other factors which had to be determined.

In the transition to emulsions for the earlier patients, double the amount of mold allergen contained in the maintenance aqueous dose was administered in the emulsions. No systemic reactions were encountered, and to the great satisfaction of the patients, their relief persisted for periods of several months instead of days or weeks after conventional injections.

A technique of provocative skin test titration was evolved from the aqueous dosage relationships of the transitional patients, and has been confirmed with new patients started immediately on emulsion injections. Briefly, this test permits the use in the first emulsion injection of 25 times the amount of aqueous mold allergen which fails to produce a systemic reaction in intradermal injection, regardless of the size of the local test reaction.[2] Some variation upward is safe for the beginning dosage of the few patients who experience systemic reactions in higher (1:10,000 or 1:100,000) dilutions. If no systemic reaction ensues, the titration is carried to 0.02 ml of 1:1000 aqueous mold allergen.

In the interest of conservatism, particularly in children, I usually give only 50 per cent for the first injection when the provocative titration calls for a "maximum" dose, and administer a full dose after four to six weeks. Thereafter, injections of the full dose are repeated as needed, usually every three to five months.

In an earlier report[2] I observed that most patients maintained on lower dosage did not do as well clinically as those receiving larger amounts. Now I try to

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increase dosage for patients started at lower levels to an amount which will control symptoms for at least three months; many of these patients started on lower doses can ultimately attain maximum dosage. Occasionally patients on lower emulsion dosage will report no symptoms whatsoever for periods of six months or longer; I see no reason to increase dosages for these patients.

My earlier maximum dosage of emulsified mold allergen was 1 ml of 1:2000 w/v in terms of the emulsions (approximately 2000-2500 PNU). Since about 1963, in order to reduce the total volume of the emulsions, I have doubled the concentration to 1:1000, and reduced volume to 0.50 ml. I now prepare 1:500 w/v mold emulsions, to permit combining with emulsions of non-mold allergens to a total volume of 0.50 ml. I prefer a volume of at least 0.50 for emulsions containing such potent allergens as molds, in the interest of immediate safety and longer duration of activity.

In my practice I use exclusively the MMP mold allergens* developed by me and my collaborators,[3] and prepare emulsions to contain 50 per cent aqueous allergen. Most of my patients are sensitive to dematiaceaous mold genera, and their therapeutic mixtures include all genera producing unequivocal skin test reactions; a few receive similar mixtures from other botanical mold groups. Until maintenance dosage requirements are established, it is imperative to maintain botanically unrelated mold mixtures as separate allergens, but they may be combined for convenience thereafter.

Emulsion treatment for pollens may be maintained on a preseasonal basis, and for environmental allergens such as dusts and danders on a perennial basis along with emulsion treatment with mold allergens. I usually administer non-mold emulsions separately until their requirement is established, but thereafter I combine them with mold emulsions when the time for both injections coincides.

Clinical Results

The clinical protection afforded by injection treatment with emulsified mold allergens has been phenomenal. Symptoms from atmospheric molds may be controlled in stabilized patients for long periods, up to five months or longer frequently. The degree of relief, furthermore, is usually such that injection treatment with other allergens becomes much more effective. Without resorting to an attempt at grading results percentagewise, which at best is highly inaccurate, I can state with certainty that with emulsified mold allergens I have accomplished for more of my patients what I tried to do previously with aqueous injections.

* Available from Hollister-Stier Laboratories.

Adverse Effects

Adverse reactions to injections of emulsified mold allergens may be either local or systemic. Some degree of swelling, sometimes with erythema and discomfort, is the most frequent adverse local reaction; it usually subsides after two or three days. An occasional nodule may persist after emulsion injections, but these generally disappear after a few weeks. In my complete series of mold emulsion injections, which now totals 791, there were nine cysts, an incidence of 1.13 per cent. In all instances except one, patients experiencing a cyst had no further symptoms from the involved molds.

I reported 61 systemic reactions in an earlier series of 515 emulsion injections administered to 80 patients.[2] Except for one reaction resulting from intravenous injection, all the reactions varying from urticaria to respiratory symptoms were mild and easily controlled. In a subsequent series of 96 injections administered to 15 patients, mild erythema after a few hours in one patient was the only systemic reaction reported. I attribute this almost complete disappearance of systemic reactions to improvement in the quality of emulsions, and to greater experience on my part in their administration.

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3. Prince, H. E. and co-authors: Molds and bacteria in the etiology of respiratory allergic diseases. XXI. Studies with mold extracts produced from cultures grown in modified synthetic media. *Ann. Allergy* 19:259, 1961.

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SK&F SERVICES CATALOG 68/69

Smith Kline & French Laboratories recently released its SK&F Services Catalog 68/69, which is available to physicians without charge.

Included in the illustrated catalog are medical films, booklets, periodicals, medical color television, Speakers Bureau, and the "Code 4" cardiopulmonary resuscitation training program.

New to this year's catalog are the films, "Functional Anatomy of the Human Kidney" and "Vertigo: Differential Diagnosis," which describes the techniques for performing an office examination of the patient with vertigo. Also included are, *Medical Assistant,* a quarterly publication for the physician's office assistant, and Medical Information Service on SK&F products.

Algae as an Allergen

Provocative Nasal Inhalation, Algae

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Airborne algae is of definite allergenic significance. Although we cannot conclude that algae are always a primary allergen, this study does suggest that the presence of algae, in large quantities, contributes to symptoms which may not have been explained by previous testing.

Introduction

THE PRESENT STUDY was undertaken with a two-fold purpose:

1. To determine the allergenic significance of algae.

2. To determine the statistical incidence of allergic symptom complexes caused by this antigen in a heterogenous patient population.

Drs. McGovern, Haywood and McElhenney[1] have reported significant observations indicating the possible allergenicity of airborne algae. They have demonstrated the presence of significant quantities of algae cells in the air, and have demonstrated positive skin reactions of an immediate wheal and flair type.

A clinical evaluation was carried out on 125 atopic individuals. The median age of this group was 37 years, with a range of 4 months to 75 years. The group included 63 males and 62 females. The patients in this study exhibited all types of allergic diseases and all degrees of sensitivity to other known inhalant allergens *(Table 1)*.

Materials and Methods

Provocative nasal testing was carried out by having the patients sniff a small quantity of algae from the end of a wooden toothpick. A single algae (spygrogia) was used. Symptoms produced by the inhalation were observed over a five-minute time period, and reactions were recorded by trained personnel. The symptoms produced were relieved by intradermal neutralization. This algae study was limited to diagnostic evaluation only.

Results of Testing

Table 2 shows the percentages of positive reactions to the nasal inhalation of the dry powdered algae. The severity of the reactions was recorded as follows: 1+ indicates a mild to moderate reaction; 2+ indicates a moderate to severe reaction. Fifty-six patients (44.8 per cent) showed positive reactions to algae. Only 4 per cent could be classified in the 2+ (moderate to severe reaction) group. Patients in each age

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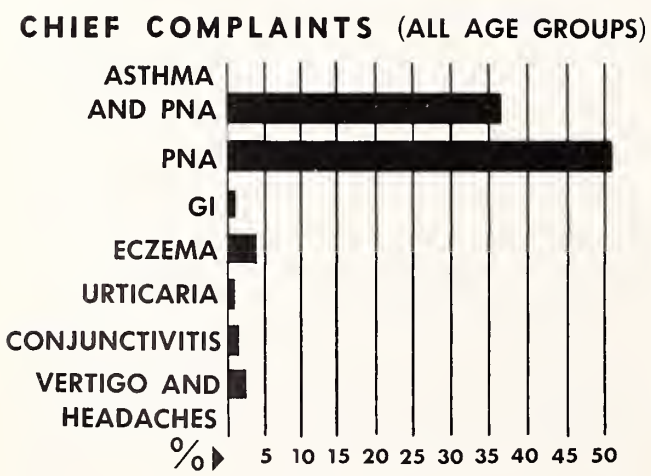


Table 1

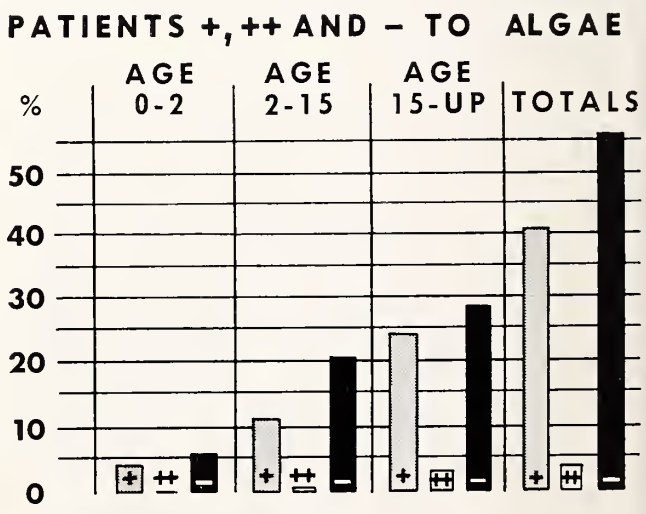


Table 2

group showed sensitivity toward algae. The two youngest patients, showing positive reactions to algae, were nine months of age. Both patients had as their primary complaint perennial nasal allergy and eczema. The symptomatic response in these two infants revealed that algae provoked both eczema and rhinitis. The oldest patient, showing positive symptoms, was 55 years of age.

Table 3 shows the wide variation of symptoms precipitated by algae inhalation. The symptoms pro-

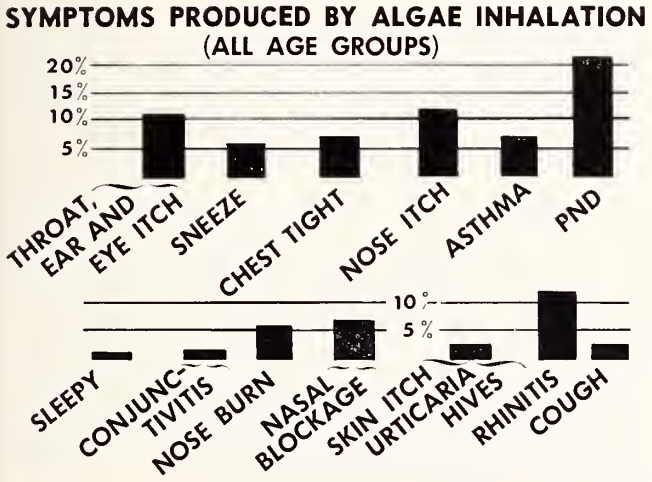


Table 3

voked by algae were not necessarily the same as those of the chief complaint. However, it was noted in the small group (4 per cent) of patients reacting at the moderate to severe level, that the provoked symptoms correlated more closely to those of the chief complaint. All patients were readily relieved of their symptoms by using intradermal neutralization.

Table 4 shows the greatest dilution of aqueous algae extract that gave a positive intracutaneous reaction. Twenty-eight of the fifty-six patients who were allergic to algae (50 per cent) showed skin test endpoints with the #2 dilution (0.01/cc of the 1/250 wt/vol dilution or 1.6 PNU). Fourteen of the 56 patients (25 per cent) end-pointed on the #1 dilution (0.01/cc of the 1/50 wt/vol dilution or 8 PNU). Only nine (16 per cent) patients had skin test endpoints weaker than the 1/250 wt/vol dilution. Four of the patients had reactions so mild that relief was unnecessary, and therefore, their end-point dilutions are not available.

Summary and Conclusions

Airborne algae are of definite allergenic significance. Moreover, the entire gamut of allergenic symptomatology may be caused by airborne algae. In the majority of these cases, the symptoms that were

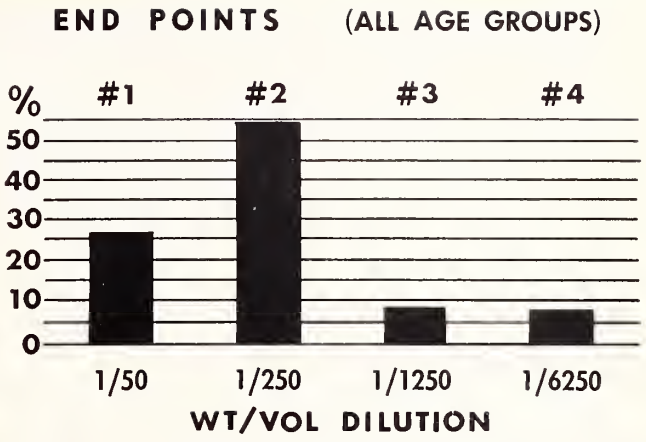


Table 4

precipitated were mild to moderate in severity (1+). Therefore, we cannot conclude at this time that algae are always a primary allergen. However, this study does suggest that the presence of algae, in large quantities, contributes to symptoms which may not have been explained through previous testing.

In the five patients who showed severe reactions, symptomatology was so closely correlated with their chief complaint that one may conclude that allergic therapy with this antigen would benefit these five patients.

Reference

1. McGovern, J. P., Haywood, T. J. and McElhenney, T. R.: Airborne Algae and Their Allergenicity. *Ann. of Allergy* 24(4):145-149, 1966.

HONG KONG FLU SENSITIVE TO ORAL DRUG

The new Hong Kong strains of influenza A_2, anticipated in the United States this winter by Public Health authorities, are sensitive to "Symmetrel" amantadine hydrochloride, according to chick embryo tests just completed in Du Pont pharmaceutical laboratories.

These egg studies with two strains of influenza A_2/Hong Kong/68 indicate the strains are sensitive to the antiviral activity of "Symmetrel." The tests suggest this oral drug can be used for the prevention of illness from the new strains of the virus that have appeared in the Far East since July.

"Symmetrel" is a prescription drug available through normal drug channels. Possible protection against illness due to influenza A_2 is obtained by taking the drug daily prior to or during a local outbreak or epidemic of the disease.

Clinically Important Species —

Specific Mold Allergens in Asthma and Rhinitis, Demonstrated by Provocative Nasal Inhalation Tests: Etiologic Diagnosis of Individual Allergic Manifestations

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PROVOCATIVE INHALATION TESTS were unexpectedly found to be an excellent method of demonstrating the existence of clinically significant, and previously unreported antigenic differences in closely related fungi. The experimentally induced reactions of mold-sensitive patients were a valuable source of conclusive information on the subject of family or genus-specific allergens in related molds. In addition, these observations provided the author with a new and broader understanding of allergic phenomena and were responsible for a useful and accurate approach to diagnostic problems as well as initiating a fascinating clinical exploration.

The findings of this investigation do not support the generally accepted belief that botanically related molds possess either a common group-specific allergen or very similar individual allergens. Consequently, there may be important errors in hyposensitization regimens based on a widely held point of view which states that extracts of related fungi may be effectively substituted for one another in treating atopic diseases. Each mold is antigenically unique and may be distinguished from other species in the same genus by careful observation of the variations in responses which are elicited by provocative exposure; a mold-sensitive patient may react differently to each member of a group of closely related fungi.

Data on *Stemphyllium botryosum* and *Stemphyllium solani* was obtained during a comprehensive and continuing study which was undertaken in order to objectively determine the allergenic importance of various molds present in the northeastern region of the United States. Prior to this investigation the author and many colleagues had no knowledge of *S. solani* as an allergen of major clinical significance. Provocative inhalation tests repeatedly incriminated this mold as a prominent etiologic factor in many cases of allergic respiratory illness. In striking contrast, the frequency, localization and magnitude of reactions induced by *S. botryosum* clearly demonstrated that this organism differs considerably from *S. solani* in its antigenic composition and its capacity to sensitize potential target cells in the conjunctival and respiratory tissues of atopic individuals.

The above findings, and unpublished data (to be reported) regarding the antigenic uniqueness of individual species of molds in the genera *Aspergillis, Penicillium* and *Mucor,* are of considerable academic and clinical significance. Other very closely related species in several additional genera of fungi are being studied, but there is insufficient data at present. The major clinical point to be emphasized at this time is the fact that an overwhelming majority of the allergists interviewed by this author are completely dependent upon the judgment and selection of the laboratories that supply their allergenic extracts.

This is an abstract of a paper on the "Antigenic Differences in *Stemphyllium solani* and *Stemphyllium botryosum*" and remarks on the value of provocative test data, presented at the Southwest Allergy Forum, May 16-18, 1968, in Wichita. The paper, in its entirety, will be published elsewhere.

The Role of the Manufacturing Chemist

For example, both Dome Laboratories and Hollister-Stier Laboratories provide an extract of *Stemphyllium botryosum* when an allergist orders "Stemphyllium." No matter how well prepared, and regardless of the potency of this extract, it will be valueless to the patient who is sensitive to *S. solani* and is unaffected by an exposure to *S. botryosum*. Greer Drug and Chemical Corporation, and Purex Laboratories furnish a monovalent extract of *S. solani* which appears to be the major offender in this genus and the Greer and Purex extracts, therefore, should lead to the desired clinical results in most *Stemphyllium*-sensitive individuals. The soluble antigens present in

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S. solani extract will not help the relatively small group of patients whose major symptoms result from contact with other species of *Stemphyllium*. The picture is further confused by the fact that Center Laboratories supply a third monovalent extract derived from the species of this mold identified as *sarciniforms*. Unfortunately, the author was not able to obtain dry acetone-killed and powdered *S. sarciniforms* for provocative nasal testing and its clinical role is, therefore, not known at present.

Officials of each of the aforementioned laboratories were contacted regarding this situation and they were questioned relative to the basis for selecting the specific strains of *Stemphyllium* from which their extracts were prepared. One laboratory spokesman indicated that the species employed by his firm was the one most commonly found in mold surveys throughout the United States. Each of the remaining four suppliers stated that the species they had chosen was selected because it was a "representative" species and contained the "common allergen" which could be used to cover all cases of sensitivity to molds in the genus *Stemphyllium*.

Careful observation of the reactions induced by experimental exposure to two of the three species (from which the monovalent extracts are prepared) has demonstrated that such a hypothetical common factor, while highly desirable, does not exist. The close taxonomic relationship between species in the same genus has not been established as a criterion by which one can select a particular, and perhaps more easily grown, species as the carrier of an antigenic substance shared by all members of its genus. A simple answer to this important clinical problem might be a trivalent extract, but the monovalently reacting atopic patient will not benefit from two-thirds of the skillfully prepared allergenically active (for other people) material with which he is "hyposensitized."

A patient who is given the wrong single-species extract will undoubtedly end up as a "Treatment-Refractory Case" or be classified as having some type of immunometabolic defect vaguely related to his reticuloendothelial or endocrine system. Even worse, the sincere and unhappy allergist may give progressively larger doses of the wrong extract from the right genus and in his frustration reach down into the old reliable wastebasket and discover that his patient is afflicted with a non-atopic psychosomatic illness that has localized in the respiratory tract.

Similar Problems With Pollens

It seems appropriate to conclude this paper with a brief reference to a series of forthcoming papers which are in various stages of preparation. It is the author's sad task to inform his colleagues that the antigenic uniqueness of each individual species of pollen (from all of the hay fever plants tested to date) has been demonstrated repeatedly by the localization and the quality of allergic reactions provoked by mucosal challenges. Each pollen induced a reproducible symptom or group of symptoms that was distinctive for that particular species in a given atopic individual.

Furthermore, as in the case of "Stemphyllium," the same complex situation exists with regard to the contents of vials of extract which are innocently labeled as "Oak," "Birch," "Hickory," "Ash," or "Maple." The allergist rarely knows what to order and he usually does not know exactly what the laboratory has sent him; his diagnosis simply was that of sensitivity to the pollen grains released by plants of a certain genus. Conversely, the laboratory knows exactly what is in the vial, but has not heretofore had the precise means of selecting the proper species of pollen from which to prepare their extracts. The 75 to 80 per cent good results from hyposensitization in pollinosis suggest that fate has been kind to allergists and their patients. In addition, one is encouraged that treatment with extracts is an excellent means of achieving allergic control, especially if one knows what materials are required.

Species-Oriented Therapy

Antiallergic therapy must become species-oriented if excellence in clinical results is to be obtained and the fiction of treatment-refractory cases is to be eliminated. This extremely important fact is well illustrated by the patient who suffers from an exposure to the pollen of a Pin Oak, a Bur Oak, or a Post Oak tree, and receives a series of injections of White Oak extract—he does not receive one iota of the biochemically distinct species-limited sensitizing antigen that is causing his Oak pollen misery. His allergist who administers an injection of Oak extract is giving precisely this type of treatment unknowingly, because almost every manufacturer supplies a monovalent extract consisting of White Oak antigens only—in the vial that is labeled "Oak."

NOTICE TO KMS MEMBERS

The Committee on History requests contributions on the medical history of the communities in which you practice.

Names are important and anecdotes are suitable; also projects in which MDs have been active, especially regarding their civic or public health activities, or both; also any unusual hobbies or collections.

Send all contributions to the Committee on History, Kansas Medical Society, 315 West 4th Street, Topeka, Kansas 66603.

Personalized Allergy Treatment

The Human Aspects of Allergy Management

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IN THIS DAY of the approaching management of the sick by computers, mass therapy, group practice, government and insurance forms as an exchange medium, hospital control of the practice of medicine, time required to care for hospitalized patients and to discharge the duties required for hospital staff membership, departmental meetings, general staff meetings, committee meetings, house staff training programs, special meetings, completion of patient charts (sometimes two or three times), utilization review charts and forms, hospital stay extension forms, little time is left for the "tender, loving care" of the patient, who hungers for the personal touch and a few kind words of encouragement and assurance.

Simon[1] states: "We have lost some of the compassion and individual concern for people that has traditionally set us apart from other professions."

Medicine is becoming dehumanized—not by choice of the doctor, but because his time is being confiscated by boresome clerical duties, such as described above, and by taking steps to protect himself from the ever-increasing suits for malpractice. Little time is left him for the personal contact so important for true insight into his patients' illness.

Yes, something has gone out of medicine. The old-fashioned patient has vanished along with the old-fashioned family doctor. Ninety per cent of today's patients are covered by some type of insurance. It is easier for them to consult a doctor, now that they no longer must worry about the bill as much as in the past.

Who Speaks for the Patient?

In today's situation, no one speaks for the patient. Sicknesses may change, drugs and therapy may change, but human nature and man's emotional reactions to the unknown, to fright, stress, pain, and mental strain, follow the same pattern today as throughout the ages.

These changes affect the practice of allergy and place a double burden on such practice because of the rapid transition through which this specialty is passing. New concepts in therapy, radical changes in drugs and pharmaceuticals, more knowledge of immunology and pulmonary function and physiology, better training and acceptance by the medical community and public have brought about better management of the allergic condition. Yet none of these factors can make up for the loss of certain fundamentals necessary to the proper care of the allergy patient.

Paracelsus, in the 16th century, wrote: "To cure disease is an art which cannot be acquired by the mere reading of books, but which must be learned by experience."

We must remember that in spite of all of this progress, mortality from asthma has not decreased, and there is some suggestion that it has increased. This increase is not believed due to increased use of steroids but rather to greater use of barbiturates, opiates, and larger doses of epinephrine or a combination of epinephrine with other sympathomimetic amines (isoproterenol). We must ask ourselves to what extent we allergists may be responsible for this situation, through losing the "human touch" in the pressures of today's demands on our time. The following case may be illustrative.

Neurosis or Allergy?

A teen-aged girl was brought to me by her parents because of bronchial asthma and momentary loss of consciousness during asthmatic attacks. The family doctor said she was doing this to get attention. She had suffered with bronchial asthma all of her life, but had had nothing but an occasional emergency treatment.

She was given an allergy survey and found reactive to a number of pollens and a few common foods. Her fainting spells were found to be the result of cough syncope from her bronchial asthma. After she was assured that her "blackouts" were not neurotic, and after hyposensitization treatments and advice on environmental and dietary control, she was relieved of her suffering and embarrassment and the entire course of her life was changed.

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How often does a hasty, unsympathetic diagnosis by a hurried "office-calls-only" physician send an asthmatic patient home labeled as a neurotic and told, "It's all in your head." Good medicine can be learned only at the patient's bedside. There is a marked paucity of such teaching and training for today's students of medicine.

I once had a teacher who cautioned us to never insist on an elderly patient changing his religion, his politics, or the style of his underwear. This is a phase of the human relationship which seems in short supply nowadays.

There Is Still No "Instant Medicine"

Since the advent of "miracle drugs," especially antibiotics and corticosteroids, the medical picture has changed, and as Becker[2] has so aptly put it: "There were exhilarating rides, but promise of eternal success faded. There was a slow dawning that helping the patient did not always equate with smashing the disease at any cost. I dismounted the 'white horse' charger and harnessed it to the 'old drugs'—common sense, concern, love, and finally, the plow of humility. Walking behind a plow does not give the buoyancy of the gallop, but the harvest is greater."

And so, as the unicorn fable[3] and its healing potion, alicorn, have been displaced in man's mind by the miracle drug as a magical placebo, man has not completely traversed the mental span from childhood to complete maturity. Thus man still tends, as Oscar Wilde has said: "To think a thing is to cause it to begin to be." Hence, to create confidence by artful medicine is a step in alleviating suffering.

It is said that there are 15,000 ways for a human being to be ill. The Department of Health, Education and Welfare estimates that in a five-year period, doctors see 150,000,000 patients a year, or an average of five visits each. The allergist sees his patients that many times each month. Such visits include diagnosis, preventive medicine, therapeutics, and advisory medicine. This creates a close personal physician-patient relationship, and nurtures the human aspects of management of allergic diseases. Thus, the complete, well-established, competent allergist, with his diversity to experience and knowledge, will be able, to a large extent, to fill a void in medical practice today, by his frequent contact with his patients and by his familiarity with their personalities. This makes the allergist less hesitant to cross departmental lines.

The Close Relationship Between Allergy, Asthma, and Emotions

Though the old-fashioned family doctor who routinely dispensed pills and homespun philosophy is passing from the scene, many patients still look to physicians for emotional support. A Vermont farmer defined a good physician as one who "thinks about you between visits." And Lord Chesterfield commented that men want their complaints listened to, but not necessarily acted upon.

While we read and hear more and more about the increasing use of computers in the practice of medicine, I have yet to hear of a computer that lends a sympathetic ear to a suffering patient's emotional problem. Yet we all realize the close relationship between emotions and exacerbation of allergic and asthmatic symptoms. Computers cannot write a book, paint a picture, discover a new drug, or invent a new machine; only man can do these things. Because a computer cannot sense emotional reactions, or express clinical judgment or experience, man's five senses must take over. It is said that computers can draw a diagnosis from a history and symptoms fed into them on a punchcard, but it takes a skilled human history-taker to prepare the punchcard data and to sense the extent to which the patient is exposing or hiding behind his history and symptoms.

It is here that we see the vital distinction between the "art of medicine" and the "science of medicine." Both have their places, and neither can function for the patient's betterment without the other. However, until we straighten out our book-keeping (as, for example, teaching the student to spend three hours on one case or see three patients in one afternoon, when in practice he must see 40, we are in chaos.

The art of medicine implies proper communication between the patient and doctor. Words have different meanings to different individuals. This was forcibly impressed on me some time ago when I gave an asthmatic patient, a huge, uneducated man, some rectal aminophylline suppositories wrapped in foil, and told him how to use them to control attacks of asthma.

He returned in two weeks, and said that the suppositories didn't seem to help; although he tried to hold them in his rectum, they always came out when he defecated, even two days later. After a little conversation, I learned that he was inserting them still wrapped in foil!

Which proves that human relations require patient and full explanation.

A New Generation Which Knoweth Not Aesculapius

The older doctors with humanist traits are dying off. The younger ones look to the cold, calculating, computer, laboratory style of diagnosing and managing patients. Thus, the hustle and bustle of modern-day practice of managing patients has curtailed the pleasant, suave sort of "bedside manners" taught

and practiced 30 years ago. Getting the government into medicine has already made medicine even more impersonal. A doctor who is so busy "rendering unto Caesar" that he ignores the god of the art of medicine is performing only half the duties of a true physician.

"Medicine is fun. I know of no other profession which offers the sheer joy of practice. You and I are lucky devils, my friends."[4] Medicine means more than writing an Rx, leaving orders, or interpreting laboratory tests; the doctor must use his human as well as his professional judgment. Empathy cannot be prescribed or packaged.

There are some allergists who, relying unduly on skin-test reactions, restrict their patients to such an extent that the patient feels as though he is being forced to live in a glass cage, almost completely separated from society and so restricted in his diet that he feels he no longer belongs to the human race. This, in itself, can produce emotional problems that may be worse than an occasional rash or headache.

By thinking in terms of empathy with the patient, an allergist will make restrictions minimal and only to the point of controlling troublesome symptoms. I teach my medical students and tell my patients that I had rather the patient have an occasional wheeze or a stuffy nose or a few hives or itches than to have the patient's friends and associates think that he is abnormal. I tell the mothers of my little patients, and adults too, with average or minimal food idiosyncrasies, that if they go to a party where ice cream and chocolate cake are served, and they have been restricting their diet along these lines, to go ahead and eat a little of it rather than be looked upon and chided by the other kids as being peculiar and different from the others.

The allergist of today who thinks of himself as a locum tenens for the old-fashioned "family doctor" is exercising the human aspects of allergy management. In his frequent and extensive contact with patients with emotional problems, he can do much to prevent many emotionally disturbed patients from turning into psychotic invalids.

A knowledge of immunology, epidemiology, and dermatology are inseparable from the practice of allergy. Rarely does a day pass that the allergist is not called upon to differentiate food allergy, contact allergy, or drug allergy from measles, scarlet fever, the exanthematous diseases, atopic dermatitis, infantile eczema, or to distinguish herpes simplex from chickenpox. This requires the art of seeing the patient as a whole human being, not just as a stopped-up nose with a body attached.

A good example was an 11-year-old girl seen by me recently with a skin rash diagnosed by her physician as a "drug or food rash." She had been on a rice diet for two days. She was weak, feverish, had a sore throat, very groggy because of antihistamines, and almost in a state of collapse. The white blood count was elevated. (She had been exposed to scarlet fever.) She had the typical appearance of scarlet fever, and when her mouth, tongue, and throat were examined, there was not much doubt left. She was removed from her rice diet and antihistamines and given penicillin. The next day she was improved, comfortable, and above all, very grateful.

At the other end of the age spectrum was a 65-year-old woman who had been a faithful Christian Scientist until several years before, when her grandson, who lived with her, contracted tuberculous spinal meningitis. Her husband had retired because of arthritis, and her elderly mother, who lived by herself, had become helpless and had to be cared for. At that point, the patient became disillusioned with Christian Science, and, when she developed an erythematous rash about the neck, which became generalized, she turned to a series of medical doctors, was placed on cortisone for most of this time, developed diabetes, was placed on Orinase, had severe abdominal cramping and became highly photosensitive. From the extreme of Christian Science she became a peripatetic one-woman clinic.

Finally she found her way to my office, deciding that one of her troubles was food allergy. After examining her and evaluating her history, I felt that her emotional state and feelings of guilt were combining with iatrogenic factors to cause her misery; the cortisone was the cause of her diabetic symptoms; the diabetic pills caused the photosensitivity; and the photosensitivity from the sulfonamides, not food allergy, caused the itching. I advised her to stop all medication for a while, to properly care for her skin, to stop worrying about other people's problems and to go back to some of her Christian Science practices.

This, I believe, demonstrates the human aspects of allergy management. It gave her a new lease on life, and reestablished her faith in her religious beliefs and in doctors as well.

Many Aspects of the "Human Approach"

I had three little brother allergy patients who were pushing their mother and dad to know about the "facts of life." The parents did not feel up to the occasion so they decided to get me to do the chore; they said that I had their confidence. Of course this whetted my ego, although I was not sure that I knew all of the "facts" myself. However, I tried and the boys are all fine young college men now. This was not allergy, but it was good human relations and demonstrates that the love life as well as the sting of bees can come into allergy practice.

Another demonstration of the human aspect of al-

lergy management was the case of a five-month-old mongoloid child of a patient. The child was having difficulty in breathing. The parents were told that the enlarged tongue and peculiar shape of the nose in such cases was probably the cause of its respiratory difficulties. After sitting up night after night with the baby, they brought it in for me to examine. It showed all the signs and symptoms of allergic rhinitis and bronchial asthma. It was treated by eliminating cows milk, introducing environmental control, and symptomatic therapy. It promptly recovered from its respiratory difficulty, and one heavy burden was removed from grateful parents of a defective offspring.

Another patient, a 55-year-old retired physician, represented a diagnostic problem in determining whether his condition was food, facts, frills, fancies or phobias.

He stated that he had had Malta fever in 1935 and had been practically incapacitated since. His symptoms were weakness and frontal headaches. He felt exhausted all the time, had "low blood sugar at times," had vertigo with nystagmus to the left, and incriminated certain foods, especially milk, as causative. He denied having any trouble with milk or foods as a child, but as an adult had diarrhea and anal pruritis which he decided followed ingestion of wheat, milk, beef, chocolate, soybean, tea, fish, oatmeal, or buckwheat.

When seen by me, he was living on only rice, bananas, and oranges, stating that if he ate anything else, he would grow dizzy, have headaches and pruritis, and all the other symptoms described above.

He had been seen by numerous doctors, including competent allergists, gastroenterologists, and internists.

His allergy survey was nonrevealing except for positive skin tests for cabbage, beet, cocoa, cheese, milk, spinach, casein, mustard, lactalbumin, and beer.

I was of the opinion that his troubles were not all from food allergy, but was not successful in convincing him, so had to allow him to continue enjoying his self-diagnosis.

Recently, a 31-year-old mulatto male laborer was referred to me by Vocational Rehabilitation for evaluation of his allergies. He was unemployed and had been unable to do much work since he was 12 years old. At that time, he developed wheezing, cough, dyspnea, stuffy nose, lacrimating itchy eyes and nose. He was listless, drowsy, and would fall asleep when he sat still. He had been treated repeatedly for "respiratory infection" in the past.

The physical examination revealed no acute distress, but he looked very tired and listless, with all of the physical findings of nasal allergy and bronchial asthma.

X-ray of the sinuses and chest were nonrevealing.

The vital capacity tracings revealed 35 per cent below normal in the one- and two-second readings, and 25 per cent below normal in three seconds.

Skin tests with foods, dusts, pollens, inhalants, molds, and animal emanations revealed very severe immediate and delayed reactions to grasses, trees, ragweeds, pigweeds, and elevator dust.

The hemoglobin was 40 per cent, 7.40 gm. per 100 ml., with an RBC of 2,400,000 WBC of 8,800; neutrophils, 63 per cent; lymphocytes, 22 per cent; eosinophils, 12 per cent; monocytes, 2 per cent; and basophils, 1 per cent. The abnormal shape of the red blood cells prompted a recheck, and a suspicion that his case involved sickle cell anemia, which was confirmed.

This individual had no idea what his trouble was, or how it might affect him. Considerable time was spent in explaining to him that his tiredness and inability to work were not due wholly to his allergies, and that he needed further treatment in conjunction with allergy management, to be "rehabilitated," as well as genetic counseling.

Such a crossing of departmental lines was not required, but a patient with asthma and sickle cell anemia needs a lot of good medical care, as well as personal expression of human interest.

Summary and Conclusions

In the past 15 years, something has gone out of medicine.

1. The art of medicine is losing ground because:

   (a) Doctors are being more educated in the science, and less in the art of medicine; why?

   (b) Many teachers are now full-time employees and fewer physicians in private practice are spending time teaching in medical school.

2. Paperwork is becoming so voluminous that little time is left to spend with patients.

3. Government interference is hampering the freedom of the doctor to manage his patient according to the dictates of his conscience and judgment.

4. Hospital control over the practice of medicine often usurps the doctor's independence and makes him a vassal of the hospital.

5. Insurance and government red tape have commandeered the doctor's time and robbed the patient of this valuable attention.

After all, medicine is an art as well as a science, and a doctor's human relations are as important in therapy as his technical ability. Neither colleges or schools can create physicians. They can confer privileges, but they cannot cause him to be what he is not.

(Continued on page 482)

New Therapy in Bronchial Asthma

An Evaluation of Ponstel® (Mefenamic Acid) in Chronic Bronchial Asthma and Pulmonary Emphysema

RICHARD H. JACKSON, M.D., WARREN J. RAYMER, M.D., *and* RICHARD L. ETTER, M.D., *Houston*

We have conducted a clinical trial of mefenamic acid (Ponstel®) 250 mg q.i.d. for a period of 12 weeks in patients with chronic bronchial asthma sometimes accompanied by pulmonary emphysema. This is the first report of the use of this anti-inflammatory-analgesic in disease of the tracheobronchial tree and lungs and gives encouraging results that should lead to further definitive studies. Seventy-six per cent of all patients improved while taking the new drug: 33 per cent mildly, 40 per cent moderately and 3 per cent almost completely. This was a better outcome than anticipated in these 30 subjects who had had their disease for a median duration of 19 years and a median frequency of respiratory distress classified as frequent. There was a statistically significant improvement in three different pulmonary function tests during the 12-week period of study. Twelve of 30 patients were able to decrease their steroid requirements as the trial progressed. The safety of mefenamic acid was confirmed by absence of change in either the complete blood counts or urinalyses, including microscopic examinations. No exacerbations of asthma were noted during the period of this study. Twenty-one of 30 subjects (70 per cent) requested to continue on mefenamic acid when the study was completed.

THE MANAGEMENT of chronic bronchial asthma and pulmonary emphysema is one of the more difficult therapeutic problems in medicine. Success of drug treatment is largely related to the amount of functional tissue which still is physiologically active and capable of responding to chemotherapeutic agents. Probably the patient with far advanced disease with destruction of bronchiolar smooth muscle and supporting structures cannot reasonably be expected to improve with drug treatment. On the other hand, patients with disease which may be classified as only mild to moderate may reasonably be expected to improve and, hopefully, have the progress of the underlying disease arrested. In some more fortunate cases, the disease process might even be reversible. Since a component of diseases of the tracheobronchial tree is oftentimes inflammatory, trial of anti-inflammatory agents over a period of time seems logical, particularly when combined with conventional drug therapy such as bronchodilating agents.

This report concerns the trial of a new anti-inflammatory-analgesic-antipyretic agent which was still an investigational drug in the United States at the time this study was undertaken. The drug has since been marketed under the trade name of Ponstel® and has the generic name of mefenamic acid. In many foreign countries it has the trade name of Ponstan®. It also had the clinical investigation number CI-473 of Parke, Davis & Company.* While mefenamic acid has been marketed in the United States as an agent to relieve pain of mild to moderate severity, actually it was discovered in anti-inflammatory screening tests and is best described as an anti-inflammatory-analgesic, and not thought of simply as an analgesic agent only.[1] It may, in addition, selectively antagonize certain components of allergic bronchoconstriction.[1a]

Methods

Patients participating in this trial were selected from outpatients in our private practice of allergy and always had chronic bronchial asthma, sometimes

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* Supplied by Robert D. Laird, M.D., Assistant Director, Clinical Therapeutics, Parke, Davis & Company, Ann Arbor, Michigan.

with associated pulmonary emphysema. Thirty subjects were selected and are reported. Three other patients began the study but dropped out because of personal reasons unrelated to the study drug at week 2 and at week 6. These three patients have not been included in this presentation.

Before entering the study, all patients had received variable doses of combined drug therapy consisting of steroids, bronchodilators, expectorants, antibiotics, sedatives, tranquilizers, or sympathomimetics. One patient did not specify the degree of relief he had received from these therapies. Of the 29 patients who indicated a result from these previous therapies, 55 per cent reported fair relief, 35 per cent fair to poor relief, and 10 per cent poor relief. At variable times during the present trial, 29 of the 30 patients received combined drug therapy in addition to mefenamic acid.

The patients participating in the trial were 12 females and 18 males with an over-all median age of 52 years and an age range of 22 to 70 years. The median body weight was 149 pounds. The majority of patients, 23 of 30 (77 per cent), had disease that was classified as moderate. Six patients had severe disease and one had mild disease.

Eighteen of the 30 patients (60 per cent) had bronchial asthma alone while the remaining twelve had bronchial asthma and pulmonary emphysema. Most of the patients (70 per cent) had a record of frequent respiratory distress rather than occasional or constant. The median duration of disease among all patients was 19 years.

In addition to the above information the patients were subjected to three different pulmonary function tests: total vital capacity, maximal breathing capacity, and three second timed vital capacity; and had a complete blood count and urinalysis, including microscopic examination, all immediately before experimental treatment. The laboratory work was repeated at two-week intervals for the entire duration of the study, and the pulmonary function tests were repeated at 2, 4, 8, and 12 weeks. Relief of symptoms, change in steroid requirements, and adverse experiences were incorporated into the over-all evaluation of therapy.

At the onset of the study, patients were administered mefenamic acid in capsules of 250 mg each every six hours for a total period of 12 weeks. These subjects were outpatients and were given a supply of drug sufficient for two weeks when they would return to the office for evaluation by the physician and laboratory and pulmonary function tests. Data were recorded on reporting forms specially designed for this trial.

Results

Relief of Symptoms

Both the patient and the physician scored the relief of symptoms and the physician's evaluation closely paralleled that of the patient's report. Of the 30 patients participating in the trial, 20.0 to 23.4 per cent reported no relief of symptoms at the bi-weekly observation times. Consistently reporting mild relief of symptoms were 33 per cent of the subjects. Forty to 44.8 per cent of subjects reported moderate relief and 3.3 per cent of subjects reported complete relief. Eighty per cent of subjects reported some decrease in symptomatology and this was observed as early as the first observation at two weeks and was consistently found over the entire duration of 12 weeks.

Pulmonary Function Tests

A statistical analysis of results was made of the improvement noted in each of the three different pulmonary function tests. When patients were subdivided according to the severity of their original diagnosis, a significant number (at the 5 per cent critical level) of patients increased in all three tests measured, i.e., total vital capacity, maximal breathing capacity, and three second timed vital capacity.

When patients were grouped by the severity of their respiratory disease, a significant number of patients with mild or moderate severity had increases in all three tests, but those in the severe category did not. It should be noted, however, that there were only six patients in the latter category and this small number probably contributed to the statistical non-significance of findings. When all three classifications of severity of disease were combined, the statistical t-tests performed showed the average degree of increase in pulmonary function during treatment to be statistically significant at the 5 per cent critical level.

Change in Steroid Requirement (Table 1)

Twelve of the 30 patients were able to *decrease* their steroid therapy requirements. Two patients (Numbers 1 and 9) had completely stopped this therapy by the end of the study. In addition, one patient (Number 33) discontinued all oral steroids and decreased his pretreatment requirement of ACTH (40 u./1-2 weeks) by more than one-half. Another patient (Number 8) also decreased his requirement for ACTH (40 u./wk. to 20 u./10-14 days) and discontinued taking Celestone®, but resumed this drug after the study at a lower level. The other eight patients were able to decrease their steroid requirements from a slight amount to more than one-half their pretreatment levels.

TABLE 1

PATIENTS DECREASING AMOUNT OF STEROID THERAPY DURING STUDY

Patient Number	*Pretreatment Steroid Requirement* NAME	DOSE	*First Change From Pretreatment Steroid Requirement* STUDY WEEK	DOSE	*Final Dose of Steroid*
1	Oral steroids ACTH-gel	A 1-2 wk. course/mo. 40 u./mo.	Week 4	Discontinued	None, but needed 6 day course beginning 8 days before end of study.
5	Kenacort®	4 mg/day-t.i.d.,u.r.n.	Week 9	Temporarily discontinued	4 mg 3-4 x week but had to resume on a daily basis during Week 6 because of an exposure to insecticide spray.
6	Decadron®	.375 mg/day.	Week 8	Temporarily discontinued	.375 mg daily—missing dose occasionally.
8	Celestone®	2-3 wk. course (4-5 days on .6 mg, then tapering off in 10-14 day period) once every 4-6 wks. during past year.	Week 1	Discontinued	None, but resumed after study with a reported marked decrease in need for courses of therapy.
	ACTH-gel	40 u./wk.	N.S.*	N.S.	20 u./10-14 days.
9	Oral steroids ACTH-gel	A 10-14 day course/mo. 40 u./wk.	Week 4	Discontinued	None
10	Prednisone	5 mg b.i.d.-t.i.d.	Week 8	5 mg b.i.d.	5 mg b.i.d.
15	Kenacort®	8 mg/day started a few days pre-Rx.	Sometime during Weeks 1-4	4 mg/day	Decrease in frequency and quantity—dose N.S.; had decreased to 4 mg/2 days by Week 6.
20	Celestone®	.3 mg/day.	Week 6	Temporarily discontinued	None, but needed two short courses of .3 mg/day during study; after study taking .3 mg 2-4 x wk.
23	Prednisone	2.5 mg t.i.d.	Week 4	2.5 mg b.i.d.	2.5 mg b.i.d. (t.i.d. occasionally, p.r.n.) but needed one four week course of 2.5 mg t.i.d. before end of study.
27	Kenacort®	2-4 mg/day.	Week 4	2 mg/day	2 mg/day but needed a 7-10 day course of 2 mg t.i.d. following a 2 week period of taking 2 mg p.r.n.
32	Aristocort®	2 mg/b.i.d.	Week 4	2 mg/day	2 mg/day.
33	Oral steroids	3-4 courses in past year.	Week 1	Discontinued	None
	ACTH-gel	40 u./1-2 weeks.	Week 6	N.S.	Less than 20 u./1-2 weeks.

* N.S. = Not Specified.

Laboratory Studies

Evaluation of the complete blood counts and urinalyses which were done bi-weekly showed no clinically significant findings during the period of treatment with mefenamic acid as compared with the pretreatment values.

Adverse Experiences

Five patients of the 30, all in the moderate severity group, reported adverse experiences. Four of these cases reported gastrointestinal complaints; three reporting diarrhea, and one reporting abdominal cramps. A fifth patient reported dizziness only. In the investigator's opinion, these symptoms were drug attributable in four of the five cases. The abdominal cramps were questionably drug attributable. Three of these patients had to discontinue the drug because of their adverse experiences (two because of the diarrhea and one because of the abdominal cramps) but two were able to resume taking mefenamic acid on a reduced schedule (t.i.d. rather than q.i.d.) and the third subject continued taking the drug erratically through the rest of the trial. One patient did not have to discontinue the drug but took it at a lower dose level (t.i.d.).

One subject reported visual difficulties while participating in this study and discontinued taking mefenamic acid. His blurred vision disappeared but recurred later. He was 70 years of age and had bilateral nuclear cataracts diagnosed by a qualified ophthalmologist. It was concluded that mefenamic acid was not the underlying cause of his symptoms and that the disappearance of symptoms when drug was discontinued was probably coincidental.

Discussion

The present study suggests that an anti-inflammatory-analgesic, mefenamic acid, can benefit patients with chronic bronchial asthma alone or accompanied by pulmonary emphysema when of mild to moderate severity. This new drug was usually superimposed on pre-existing management of the patient and was not used as sole therapy for such subjects. Rather, patients were previously stabilized on prior therapy, and during the addition of mefenamic acid their condition improved, as measured by lessened symptomatology, statistically significant improvement in three different pulmonary function tests, and reduction of steroid requirements in 40 per cent of patients. It must be pointed out, however, that any influence of mefenamic acid itself, in this study, was confounded with miscellaneous effects associated with the passage of time, including an awareness by the patients of increased therapeutic attention.

In the opinion of the investigators, 20 subjects had definitely drug attributable beneficial results with two other subjects having definitely no improvement that could be attributed to the drug. The eight remaining subjects varied from questionably benefited to equivocal and probably not benefited.

Especially significant from a clinical point of view in this uncontrolled study was the finding that 21 of 30 subjects requested to continue on Ponstel® in a regular maintenance dosage after the study was completed.

Generally speaking, mefenamic acid was tolerated well by the majority of subjects. Five of 30 subjects (17 per cent) had adverse experiences. In three subjects the drug had to be discontinued. Two of these were able to resume taking the drug on a reduced schedule and another continued taking the drug erratically the remainder of the trial. None of the adverse effects was life-threatening. Diarrhea has been one of the more frequent gastrointestinal effects reported with mefenamic acid in other studies, in addition to nausea, a feeling of heaviness in the stomach, or abdominal cramping. In spite of the appearance of diarrhea, it is clinically important that patients were still receiving sufficient benefit to continue taking the drug for additional weeks of time.

In no instance was there any exacerbation of acute asthmatic symptoms which were drug attributable. While this series of patients is relatively small, it is suggestive that mefenamic acid would be safely tolerated and studied in a larger number of asthmatic subjects.

In this study, blood levels of mefenamic acid were also measured.* Plasma samples were assayed for free mefenamic acid, conjugated mefenamic acid, and total metabolite by the assay procedure developed by A. J. Glazko, et al.[2] Plasma levels of drug were measured before treatment with mefenamic acid 250 mg q.i.d. for 12 weeks and then at bi-weekly intervals during treatment. The level of free drug in plasma was 1.35 ± .24 micrograms/ml at week 2. The drug level increased slightly by week 4 to 1.76 ± .19 micrograms/ml and then remained fairly constant for the balance of the study. Plasma levels of conjugated drug were very constant from weeks 2 through 12 varying from .91 ± .13 to 1.01 ± .09 micrograms/ml. Plasma levels of metabolites were similarly constant over the various observation times from weeks 2 through 12 varying from 5.48 ± .65 at week 12 to 6.90 ± .56 micrograms/ml at week 4. There did not appear to be any trend with time with any of the measurements of free mefenamic acid, conjugated drug, or total metabolite to indicate any significant change in absorption or metabolism.

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* Courtesy Dr. A. W. Kinkel, Product Development Department, Parke, Davis & Company, Detroit, Michigan.

Mefanamic acid, a rather widely used general-purpose anti-inflammatory-analgesic, has been studied recently in more specific clinical conditions and several publications have appeared in the medical literature. Buchmann in Norway compared mefenamic acid with indomethacin (Indocin®) and placebo in osteoarthritis.[3] In a double-blind study of 55 patients with osteoarthritis of the hips and knees, mefenamic acid was administered 500 mg t.i.d., a 50 per cent larger dosage than in the study reported here. Mefenamic acid was regularly attended by pain relief and increase in mobility in these patients with arthrosis of hips and knees and this was slightly more common with mefenamic acid than with indomethacin. The author concluded that mefenamic acid appears to be a useful addition to the drugs suitable for the treatment of osteoarthritis and in cases of long-standing pain it provided a useful alternative to indomethacin and other drugs.

Skyring and Mistilis in Australia[4] studied mefenamic acid and aspirin for the potentiality of inducing gastrointestinal bleeding, using the Cr^{51} tagged red cell technique. When mefenamic acid was given, blood lost in stools increased from 0.8 to 1.3 ml/day in 26 patients who were passing less than 1.5 ml/day in the control period. In 16 patients who were passing more than 1.5 ml/day in the control period, blood loss fell from 5.8 ml/day to 4.9 ml/day after mefenamic acid. The authors concluded that the capacity of the drug to produce gut bleeding is slight. In the patients given aspirin the daily fecal blood loss rose from 0.7 to 3.5 ml/day.

Dean in South Africa recently published a double-blind study of mefenamic acid and chlorpromazine in the treatment of porphyria variegata.[5] In a pilot trial first in ten adult subjects who had this inheritable form of porphyria found in the Republic of South Africa, no evidence was obtained of a liability of mefenamic acid to provoke acute attacks of porphyria as has been found with barbiturates and sulfonamides. The investigator then conducted a double blind study of mefenamic acid 250 mg q.i.d. for a period of 60 days (the same dosage used in our study) versus chlorpromazine 10 mg t.i.d. Patients on both drugs in the study increased in body weight and the drugs appeared to be equally effective in relieving the pain of this unique condition. Myles and co-workers found mefenamic acid useful in the management of rheumatoid arthritis, and cite similar results by others.[6]

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AUTO ACCIDENT DATA NEEDED

Teams of physicians and police traffic officers have been proposed as a means of collecting vitally needed scientific data from auto accidents.

H. A. Fenner, Jr., M.D., Hobbs, New Mexico, chairman of the American Medical Association's Committee on the Medical Aspects of Automotive Safety, pointed out that every traffic accident presents an opportunity to discover clues to prevention.

"Most accident reports at the present," Dr. Fenner said, "are related to law enforcement rather than to research-oriented data collection.

"If we had a corps of knowledgeable, trained, and qualified physicians and police officers to provide accurate, scientific reports on a large number of accidents, automotive engineers would have the necessary data to translate into safer motor vehicles and highways."

Dr. Fenner noted that many of the safety devices on present-day automobiles and highways resulted from traffic accident research.

According to Dr. Fenner, the AMA Committee, along with the American Association for Automotive Medicine, is studying the possibility of working with one or more universities in the establishment of intensive courses in accident investigation.

Preliminary discussions have indicated that such a course would be of three days duration and would be limited to 200 teams, each consisting of a physician and a member of a police traffic department.

Dr. Fenner said the important need at the moment is to determine if enough physicians are interested in participating in such an effort.

Physicians who are interested in participating are asked to send their name, address, age, medical college, and field of practice to the Committee on Medical Aspects of Automotive Safety, AMA, 535 North Dearborn, Chicago, Illinois 60610.

Allergy Symptom Survey

Evaluation of Emotional Content in Allergy

WILLIAM C. GRATER, M.D., ***Dallas***

Introduction

HERCULES IS REPUTED to have cleaned the Aegean Stables. In a moment of madness, I attempted a comparable feat: to express psychological findings in mathematical terms. There may be some relationship both in scope and content between these two endeavors. The anguished wails you hear are those of the psychiatrists.

To discern the emotional component in an allergic disorder is not always simple.[1] The recording of these data in such a way that it can be transmitted or subjected to future comparison is even more difficult. Fortunately, the reward of achievement is proportional to the difficulty. For example, an allergic patient with a masked depression will seldom respond to conventional therapy until the depression is under control.

Much has been written about the emotional content of allergy. An excellent review of this material is contained in McGovern and Knight's book entitled *Allergy and Human Emotions*.[2] Fitzelle attempted to study personality factors and attitudes toward child rearing among parents of asthmatic children by using the Minnesota Multiphasic Personality Inventory (MMPI), the U. S. C. Parent Attitude Survey, and personal interviews. He compared 100 mothers of asthmatic children with other illnesses and reported finding no basic differences.[3] Was this due to the personality profiles of the groups or to a lack of sensitivity of the test? This question led me to design a symptom survey for the allergic patient.

Three significant factors that can be recorded on a survey form are anxiety, depression and allergic symptoms. Anxiety is the fear of an unknown danger. Depression is both a symptom and a syndrome. It also signals a danger but does so after the event. The emotions are turned inward. If anxiety is an accident on its way to happen, then in depression it has happened. Allergic symptoms are of the sneeze, wheeze and itch varieties.

Numerous inventory scales have been used successfully with other patients. The MMPI has already been mentioned. The Beck, Hamilton, and Lakeside surveys have been utilized in depression. Additional helpful material can be found in Roche's *Aspects of Anxiety*. Having all the inventiveness of a duplicating machine, I drew liberally from these sources.

Methods

The Allergy Symptom Survey is shown in *Table 1*. The adult patient is given the form printed as shown with the scoring omitted. A brief explanation of the purpose of the survey is given the patient. This sometimes reduces hostility and enhances cooperation. It was Hippocrates who cautioned that the patient should not get angry. Let's face it. Psychological factors in illness are accepted with difficulty by many patients in our present society.

An Allergy Symptom Survey was designed to evaluate psychological factors. This proved moderately successful both in diagnosis and evaluating conventional and drug therapy. Librium® appeared useful in alleviating anxiety and Tofrānil® in lifting depression.

The scoring is shown in *Tables 2* and *3*. Both psychic and somatic symptoms are recorded. The patient must be able to read, understand and mark questions.

Results

The wording of the questions was satisfactory and evoked valid answers, but the scoring was as confusing and dependable as the present day dollar. After learning what mistakes to make, revisions were made. In spite of this difficulty, the survey and scoring proved helpful both for diagnosis of emotional content and evaluation of therapy.

When the survey was repeated at intervals, changes could be detected. An occasional depression, previously missed on the initial interview, became apparent. Both drug therapy and psychotherapy could be evaluated.

For therapy of depression, Tofrānil® was tried. The patients benefited; but since the tricyclic preparations have antihistaminic, antiserotonic and anticholinergic actions in addition to their antidepressant properties, the doctor was confused. The antimetabolic actions become evident in a day or so while the

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TABLE 1

ALLERGY SYMPTOM SURVEY

Name ..... Date .....

Please check which column *most nearly* expresses your reaction to each of the statements below.

	None of the Time	*Once in a While*	*Some of the Time*	*Most of the Time*
1. I have a poor appetite.	—	1C	2C	3C
2. The things I used to do, I no longer enjoy.	—	—	—	—
3. I have trouble with sneezing.	—	1C	2C	3C*
4. I have trouble with a running nose, or phlegm in my throat.	—	1C	2C	3C*
5. I have trouble with a blocked nose.	—	1C	2C	3C*
6. My mouth feels dry.	—	1B	2B	3B
7. My mind isn't as clear as it used to be.	—	1A	2A	3A
8. I flush easily.	—	—	—	—
9. My mind wanders.	—	1D	2D	3D
10. I get tired or weak for no reason.	—	1B	2B	3B
11. My hands are clumsy or awkward.	—	—	1B	2B
12. My skin is rough and dry.	—	—	—	—
13. My skin itches.	—	1C	2C	3C
14. My skin breaks out.	—	1B	2B	3B
15. It is necessary for me to take extra baths.	—	—	—	—
16. I worry about catching diseases.	—	1A	2A	3A
17. My eyes itch.	—	—	1C	2C
18. My family is displeased with me.	—	1D	2D	3D
19. I find it difficult making decisions.	—	1A	2A	3A
20. I put off until tomorrow what I ought to do today.	—	1B	2B	3B
21. I find walking is unpleasant.	—	—	—	—
22. I talk things over with somebody.	3D	2D	1D	—
23. I have tension at work.	—	1D	2D	3D
24. People disappoint me.	—	—	1A	2A
25. I feel useless and unneeded.	—	1D	2D	3D
26. Criticism bothers me.	—	—	1D	2D
27. I become impatient easily.	—	1D	2D	3D
28. I get good and mad suddenly.	—	1A	2A	2A
29. I am careless about my appearance.	—	1A	2A	2A
30. I sweat easily.	—	—	1C	2C
31. My feet hurt.	—	—	—	—
32. My muscles get tight.	—	1C	2C	2C
33. I have trouble with speaking.	—	1A	2A	3A
34. I have trouble with coughing.	—	—	1B	2B
35. I have trouble with headaches.	—	—	1C	2C
36. I have crying spells or feel like it.	—	1A	2A	3A
37. I have trouble with shortness of breath.	—	1B	2B	3B
38. I have trouble with wheezing.	—	1B	2B	3B
39. My heart beats faster than usual.	—	1C	2C	2C
40. I have trouble going to sleep.	—	1D	2D	2D
41. I don't sleep well at night.	—	1A	2A	3A
42. I dream frequently.	1A	—	—	1D
43. When I dream, it's the same one over and over.	—	1D	2D	2D
44. I have trouble with my stomach.	—	1C	2C	3C
45. I have trouble with diarrhea.	—	1C	2C	3C
46. I have trouble with constipation.	—	1B	2B	3B

* Highest one only.

TABLE 2

SCORING OF ALLERGY SYMPTOMS

100 Total Points

25 Points Each $\frac{A \quad B \quad C \quad D}{B+C}$

Physical Symptoms

$\frac{A + D}{A+B+C+D}$ = Emotional Symptoms

Flight Reactions — Fight Reactions

Example No. 1

A	*B*	*C*	*D*		
1 Disappoint	1 Eat	1 Sneezing	1 Talk over	Physical	4
		2 Sweat		Emotional	2
				Flight	2
1 +	1 +	3 +	1 = (6)	Fight	4

Example No. 2

A	*B*	*C*	*D*		
1 Clear mind	1 Tired	1 Appetite	2 Work	Physical	7
1 Mad		3 Nose	2 Impatient	Emotional	10
1 Speaking		1 Muscle tension	2 Going to sleep	Fight	12
1 Sleep		1 Stomach		Flight	5
4 +	1 +	6 +	6 = (17)		

Example No. 3

A	*B*	*C*	*D*		
1 Worry	2 Dry mouth	3 Nose	1 Concentrate	Physical	26
1 Disappoint	2 Tired	2 Itches	1 Talk over	Emotional	15
2 Mad	2 Breaks out	1 Sweat	3 Tension	Flight	22
1 Appearance	1 Procrast.	2 Tension	1 Criticism	Fight	19
1 Crying	1 Short breath	2 Headaches	2 Going to sleep		
1 Sleep	1 Eating	2 Stomach			
	3 Constipation	1 Diarrhea			
7 +	12 +	14 +	8 = (41)		

Example No. 4

A	*B*	*C*	*D*		
	1 Dry mouth	3 Nose	1 Talk over	Physical	20
	1 Tired	2 Itch	1 Work	Emotional	2
	2 Breaks out	1 Eyes		Flight	8
	1 Cough	2 Tension		Fight	14
	1 Short breath	1 Headache			
	1 Wheezing	1 Diarrhea			
	1 Constipation	1 Heart			
0 +	8 +	12 +	2 = (22)		

antidepressant action may take a month. While waiting an adequate time for re-scoring, I remembered that ten years before I rejected Elavil® when studying its antihistaminic effectiveness. The magnitude of this mistake resulted in my being depressed by an antidepressant.

Anxiety is particularly common in asthma. Monsour noted, "The asthmatic displays his fear of death in his tortured breathing as well as in the look of terror on his face."[4] The prevalence of anxiety led next to an attempt to evaluate Librium® for supplemental therapy in asthma. Librium® has only anti-anxiety

TABLE 3

A	1.	Clear mind
	2.	Worry about diseases
	3.	Decision making
	4.	Disappointed in people
	5.	Anger
	6.	Carefulness of appearance
	7.	Speaking
	8.	Crying spells
	9.	Sleeping well
	10.	Repression of dreaming
B	1.	Dry mouth
	2.	Tiredness
	3.	Clumsy
	4.	Breaking out
	5.	Procrastination
	6.	Coughing
	7.	Shortness of breath
	8.	Wheezing
	9.	Urge to eat
	10.	Constipation
C	1.	Appetite
	2.	Sneezing and running nose
	3.	Itching
	4.	Eye irritation
	5.	Sweat
	6.	Muscle tension
	7.	Headaches
	8.	Fast heart
	9.	Stomach
	10.	Diarrhea
D	1.	Concentration
	2.	Family is pleased
	3.	Talk over problems
	4.	Work tension
	5.	Feeling of usefulness
	6.	Feeling of criticism
	7.	Impatient
	8.	Trouble going to sleep
	9.	Dreaming

effects, lacking the specific anti-allergic action of Tofrānil®.

In a randomized, double-blind series, 35 patients were given 20 mg Librium® t.i.d. and 35 patients were given an identical placebo preparation. Surveys were obtained before and at the end of two weeks medication. A high percentage of placebo reactors influenced the results. However, Librium® was definitely superior to the placebo. The clinical evaluation correlated well with the scoring. Scores from 12 to 76 were obtained. A total score of over 35 is significant. A shift in the scoring breakdown seemed to be more meaningful than the total score. One unexpected finding was an increase in aggression. This has been reported by Gardos, *et al.*[5]

On reviewing the results, it became apparent that in anxiety the scoring lacks sufficient discrimination. In depression the scoring is more successful. Another concept of scoring is being evaluated and will be the subject of a later publication.

The idea of interaction between psyche and soma is not new. Plato remarked, "The cure of many diseases is unknown to the physicians of Hellas, because they are ignorant of the whole, which ought to be studied also; for the part can never be well unless the whole is well. This is the great error of our day in the treatment of the human body, that the physicians separate the soul from the body."[6]

More recent savants have clouded the issue. That renowned medical writer, Mary Baker Eddy, states, "Disease is an experience of mortal mind. It is fear made manifest on the body."[7] Has psychological observation in medicine improved? Probably not much. Truth in all its kinds is most difficult to win; and truth in medicine is the most difficult of all.[8] Some time ago, in a tavern after a Genetical Society Meeting, J. B. S. Haldane said that it was remarkable that *Homo sapiens* often took so long to make useful deductions from information that had been available for many years. I hope my deductions may be of some small help to the reader.

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Personalized Allergy Treatment

(Continued from page 473)

There will always be a demand for the allergist with a personal touch, with empathy, and with a willingness to see the patient as a whole human being needing sympathetic understanding.

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Asthmatic Allergies

Candida Albicans as an Atopic Allergen

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THE FREQUENCY of immediate skin test reactivity and bronchial hypersensitivity to extracts of *Candida albicans* in a large group of severe asthmatic patients has been noted in a previous report. Analysis of possible co-factors, comparison with the effects of endotoxin, the results of passive transfer testing, and observation of the effects of treatment, pointed toward the recognition of *Candida albicans* as an atopic allergen capable of provoking an asthmatic response in suitable subjects: an effect that appears to be clearly distinct from any non-specific irritating or toxic effect, and from pathogenic qualities of the organism.[1] The purpose of this report is to present the results of more than four years of experience since the last report and to discuss some further aspects of the studies.

A study of the response of a group of patients to inhalation of various allergens, including *Candida albicans*, relating the responses to skin sensitivity as well.

Methods

Since previous tabulation on January 1, 1964, 378 inpatients, 14 years of age and older, consecutively admitted to the adult Asthma Service at the National Jewish Hospital at Denver, have been given inhalation doses of aerosols of physiological saline and 30 per cent glycerin. Using a qualitative inhalation challenge technique,[2] those patients with less than a 10 per cent decrease in the forced expiratory volume of the first second (FEV_1) following the aerosols of saline and glycerin were exposed to extracts of tree pollens, grass pollens, ragweed and other weed pollens, house dust, mixed mold extracts, and *Candida albicans* extract (Hollister-Stier) in concentrations up to 10,000 protein nitrogen units per milliliter delivered through a hand nebulizer. As in the previous report, patients were considered to be allergically responsive, for the purposes of this study, when fewer than 77 inhalations (total volume of 0.25 milliliters emitted by action of the hand bulb) resulted in demonstration of a decrease in FEV_1 of 15 per cent or more and amounting to at least 300 milliliters more than the saline decrease immediately after the allergen challenge or within 24 hours, and less than a 10 per cent change in FEV_1 following the bronchial challenge with saline. All 378 patients were tested intradermally with an extract of *Candida albicans* in 1:1000 concentration (weight by volume) and observed for immediate skin reactions. Sputum specimens were obtained from each patient and cultured for the *Candida* group of organisms. The presence or absence of a long period on corticosteroids or antibiotic medication was ascertained from the history of each patient.

Results

Table 1 shows that 67 patients gave an immediate skin test positive response to 1:1000 extract of *Candida albicans* injected intradermally. A positive response consisted of a wheal greater than 10 millimeters in diameter with or without pseudopods. Because a large number of these patients were taking corticosteroids, it was not considered useful to continue to measure delayed skin responses, particularly in view of the previous report of lack of correlation with other factors. Seventy-four patients manifested positive bronchial reactions to extract of *Candida albicans,* in spite of negative skin reactions at the 1:1000 concentration. In parentheses in this table are included the results of the study up to January 1, 1964.

Table 2 presents a comparison of the possible cofactors in those patients who gave a positive bronchial response to *Candida albicans* extract before and after the January 1, 1964, date. A smaller percentage of those patients with positive bronchial reactions presented positive reactions to immediate skin tests. There was also a smaller percentage of patients who gave a history of use of antibiotics over a prolonged period of time. Although there were only 16 (of 121) patients on antibiotic medication with positive

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Presented at the Southwest Allergy Forum, May 16-18, 1968, Wichita, Kansas.

TABLE 1

DERMAL AND BRONCHIAL REACTIVITY TO *CANDIDA ALBICANS*

Jan. 1964 to May 1968 (Jan. 1962 to Jan. 1964)

No. of Patients	*Immediate Skin Response*	*Immediate Bronchial Reaction Only*	*Immediate and Delayed Bronchial Reaction*	*Negative Bronchial Reaction*
67 (42)	Positive	43 (12)	4 (12)	20 (18)
311 (39)	Negative	70 (6)	4 (3)	237 (30)
378 (81)		113 (18)	8 (15)	257 (48)
459		131	23	305

bronchial reactions to *Candida albicans* in the recent group, nine of these had bronchial sensitivity only to *Candida,* of all the inhaled substances with which they had been tested.

Table 3 presents an analysis of 12 patients with negative reactions to all bronchial challenges except the one with the extract of *Candida albicans.* The first 11 patients are in the most recent group; the twelfth patient (initials in parentheses) is from the previous report.

Discussion

It has occurred to us that the ideal patient for study of *Candida* sensitivity would be one with a positive skin test reaction and positive response to the passive transfer test for the extract of *Candida albicans,* but no other positive reactions to skin tests; who is bronchially sensitive to the extract of *Candida albicans* on inhalation but has no other positive responses to inhalation tests; who has no other allergens detectable either by the routes of ingestion or injection or by inhalation; who has an increase of eosinophiles in the blood only at the times when the sputum is positive for *Candida albicans* on culture; who has a positive family history of allergy, whose episodes of asthma cannot be attributed to either infection or the hyperventilation state, and who has never been on steroids or antibiotics. With such a pa-

TABLE 2

ANALYSIS OF POSSIBLE CO-FACTORS IN PATIENTS WITH POSITIVE BRONCHIAL REACTION TO *CANDIDA ALBICANS*

	Jan.'62 to Jan.'64		*Jan.'64 to May'68*	
	NO.	PER CENT	NO.	PER CENT
Immediate Skin Test Positive	24	73	47	39
Conjunctival Test Positive	18	54	40*	74
Mold Bronchial Reaction Positive	28	84	97†	81
Dust Bronchial Reaction Positive	21	63	89‡	74
Pollen Bronchial Reaction Positive	19	57	96	79
Sputum Cultures Positive for *Candida albicans*	16	48	38	31
Long-term Steroids by History	22	67	97	80
Long-term Antibiotics by History	16	48	16	13
Total	33	100	121	100

* Conjunctival Tests not done in 67 Patients.
† Molds Bronchial Reaction not tested in 2 Patients.
‡ Dust Bronchial Reaction not tested in 1 Patient.

TABLE 3

PATIENTS WITH NEGATIVE BRONCHIAL CHALLENGES EXCEPT FOR *CANDIDA ALBICANS*

Name	*Age*	*Sex*	*Skin Test*	*Perennial*	*Infection*	*Hyper-ventilation*	*Blood Eosinophiles*	*Sputum for Candida Albicans*	*Food Allergy*	*Steroids*	*Antibiotics*	*Family History of Allergy*
P.A.	16	F	Neg.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Remote
M.C.	43	F	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Neg.	Pos.	Pos.	Remote
B.C.	32	F	Neg.	Pos.	Pos.	Pos.	Pos.	Pos.	Neg.	Pos.	Pos.	Neg.
J.D.	17	F	Neg.	Pos.	Rare	Pos.	Neg.	Pos.	Pos.	Pos.	Neg.	Pos.
L.H.	39	F	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Neg.	Pos.	Pos.	Neg.
W.H.	15	M	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Neg.	Pos.	Pos.
M.K.	21	F	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Neg.
M.S.	49	F	Neg.	Pos.	Pos.	Pos.	Pos.	Pos.	Neg.	Pos.	Pos.	Neg.
A.W.	46	F	Pos.	Pos.	Pos.	Pos.	Neg.	Yeast not Candida	Neg.	Pos.	Pos.	Pos.
J.M.	59	F	Pos.	Pos.	Pos.	*	Pos.	Neg.	Neg.	Pos.	Neg.	Neg.
H.J.	34	F	Neg.	Pos.	Pos.	Neg.	Neg.	Asperg. not Candida	Aspirin (Triad Asthma)	Pos.	Pos.	Pos.
(G.M.)	41	F	Pos.	Pos.	Pos.	Pos.	Neg.	Neg.	Aspirin	Pos.	Pos.	Neg.
12	34 (Mean)	M 1 F 11	7	12	11	10	8	8	4	11	10	6

* History of 2 episodes of prolonged blackout without asthma.

tient, one might expect that as the bronchial hypersensitivity was reduced, the skin test reaction would become smaller in size, the passive transfer test would show a decrease of skin-sensitizing antibody, and then the clinical correlation would be in harmony with the objective findings. Such a patient has yet to come under our observation. In fact, it is unlikely that such a patient would be sent to an institution specializing in respiratory diseases before being subjected to a long course of corticosteroids or antibiotics, or both, so that it becomes highly improbable that we will find such a patient in our institution.

Twelve patients have been seen in whom other inhalant allergies have been extremely difficult to detect by history and by the diagnostic methods employed. These twelve patients do include four cases in whom food allergy is strongly suspected, and two that are sensitive to aspirin. Only one of these 12 patients (listed in *Table 3*) is a male, suggesting the possibility that hypersensitivity to *Candida albicans* may be acquired by way of the vaginal route. Among the other patients bronchially hypersensitive to the extract of *Candida albicans,* however, there is no significant difference between the sexes. The male patient is the only one of the 12 who has not had a long course of corticosteroid treatment. As previously mentioned, under "Results," nine of the 16 recent patients who have had long courses of antibiotics, and were sensitive bronchially to the extract of *Candida albicans,* had this inhalation challenge as the only positive one. A possible explanation is that, over-all, a long course of antibiotics is less apt to lead to hypersensitivity to *Candida albicans* than is a long course of corticosteroids, but that in a minority of individuals in whom the bronchial tree is not sensitive to other allergens, the long course of antibiotics may selectively make the individual susceptible to *Candida albicans* hypersensitivity. The frequency of known hyperventilators within these 12 patients far exceeds the incidence of recognized hyperventilators in the total asthmatic population of this service. This observation is not diagnostically helpful. The increased frequency of attacks associated with infection may be related in turn to the frequency of antibiotic use, thus leading toward bronchial hypersensitivity to *Candida albicans,* or it may be that at certain stages, the *Candida albicans* may act in a manner suggesting more common bronchial infection. A majority of these 12 patients is being followed regularly.

The local, constitutional, and clinical effects of injection treatment have been similar, when *Candida albicans* extract is used, to those produced in the course of injection treatment with other allergenic extracts. In a patient population selected because of severity of asthma and poor results of treatment, the frequency of bronchial hyperreactivity to *Candida albicans* extract continues to rank close behind those frequencies of hyperreactivity to extracts of house dust, and with the sum of the reactions to the common atmospheric molds.

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PHS PUBLICATION "CARDIOVASCULAR SURGERY"

A publication entitled "Cardiovascular Surgery" (PHS Publication No. 1701), which describes the most recent advances in the surgical treatment of congenital and acquired heart disease, has been issued by the National Heart Institute of the National Institutes of Health.

As a result of National Heart Institute research support, along with other federal and voluntary research funds, spectacular strides have been made during recent years in the field of cardiovascular surgery.

- Today corrective or palliative operations have been devised for most of the common inborn heart defects and for many of the rarer forms as well.
- With the development of better artificial heart valves and improved methods of sustaining the patient during prolonged open-heart operations, surgeons can repair or replace as many as three heart valves damaged by rheumatic fever during a single operation with good prospects of success.
- High blood pressure caused by atherosclerosis or blood clots interfering with the kidney's blood supply can often be cured by surgery to restore normal renal bloodflow.
- A variety of ingenious, totally implantable artificial pacemakers have been developed to restore and maintain normal heartbeat in victims of heart block.
- Assisted-circulation techniques of "booster hearts" are being developed for maintaining normal blood pressure and adequate bloodflow to the body's organs and tissues while substantially reducing the workload of severely damaged or failing hearts. This temporary respite may enable damaged hearts to recover completely.
- And much research is presently being directed at the development of a completely implantable artificial heart to replace hopelessly damaged or diseased hearts.

These and other facts including available facilities

(Continued on page 501)

Law-Medicine Comment

Artificial Insemination

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THE POSSIBILITY of human procreation by artificial insemination was not known to the common law and has been inadequately recognized in subsequent legal development. Consequently, although judicial decisions are few in number, the holdings resulting from the application of general principles of law have been inconsistent and sometimes inequitable. Legislative intervention has therefore been urged, but attempts to secure passage of acts in several state legislatures were unsuccessful until Oklahoma in 1967 became the first state to enact a statute legalizing heterologous artificial insemination and recognizing the offspring as legitimate, if certain statutory requirements are satisfied. A similar Kansas Law, passed at the 1968 session of the legislature, is discussed and reproduced below. Future problems are, however, appearing on the horizon even as solutions of present problems are being attempted, with the development of sperm preservation methods which may permit insemination long after the donor's death, and with the possibility of transferring fertilized or unfertilized ova from one female to another.[1]

Homologous Artificial Insemination

Homologous insemination (artificial insemination with the husband's semen, commonly termed AIH) creates no problems of legitimacy or paternity, since the child is the biologic product of both parents. The procedure may, however, be of importance in an action for divorce or annulment, as evidence of nonconsummation of the marriage or impotency. A 1949 English case, subsequently criticized, held that a marriage could still be annulled on the ground of nonconsummation after the birth of a child by homologous insemination.[2] A 1963 New York decision granted annulment to the wife on the basis of failure of consummation, in a counterclaim to the husband's action, although a child had been born through the use of artificial insemination, here heterologous and with the husband's consent.[3] The applicable Kansas statute, KSA 60-1602 (1964), lists impotency existing at the time of marriage and fraudulent contract as grounds for annulment.

Heterologous Artificial Insemination

Heterologous insemination (artificial insemination with the semen of a third-party donor, commonly termed AID), a relatively recent development, has created actual and potential legal problems for the parties concerned in the procedure—the child, the parents, the donor, and the physician.

Problems of the Child. The child of heterologous artificial insemination is not the biologic offspring of the husband and is therefore technically illegitimate. This status is not only generally undesirable, but specifically may affect important legal rights pertaining to inheritance, support, custody, or various survivors' benefits. Although formal adoption or testamentary disposition may obviate these problems, this appears less satisfactory than outright recognition of the child as legitimate. Protection is also afforded the child by the presumption of legitimacy, which applies to children born or conceived during a marriage, but this presumption may be rebutted by proof of nonaccess, impotency, sterility, or by blood typing results. As a consequence, pooling of the donor's and husband's semen, and selection of a donor with proper blood type have been recommended, so that the husband's paternity may be more difficult to disprove.

Homologous artificial insemination does not ordinarily cause serious legal problems. Heterologous insemination, however, creates perplexing situations: The child may be considered illegitimate; issues of adultery have appeared in court decisions; other potential civil and criminal implications exist for the parents, the donor, and the physician. Recent Kansas legislation permits the procedure of heterologous insemination and legitimizes children heretofore and hereafter born upon compliance with the statutory requirements. Physicians concerned with the technique must be familiar with this statute. Special efforts should be made to inform persons affected by the retroactive provision.

A 1948 New York decision awarded the husband visitation rights, and stated that the child was not illegitimate, although specifically avoiding the issue of property rights.[4] A 1954 Illinois decision stated that a child so conceived is not a child born in wed-

lock and therefore is illegitimate—as such it was said to be the child of the mother, and the father had no rights or interest in the child.[5] Later New York decisions (1963 and 1964) held the children of heterologous insemination illegitimate, although finding that the husband who had consented to the insemination in each instance had the duty to support the children on the basis of an implied contract.[3, 6] A recent decision (California, 1968) held that the husband who had given written consent to heterologous insemination, and not the anonymous donor, must be considered the father of the child for purposes of a criminal non-support statute. The court stated that the word "father" must be considered to include a husband, who, unable to accomplish his objective of creating a child by using his own semen, purchases semen from a donor and uses it to inseminate his wife. The court sidestepped the issue of legitimacy, however, stating that the subject of legitimation as well as that of succession to property is properly one for legislative action, although public policy favors legitimation and no valid public purpose is served by stigmatizing an artificially conceived child as illegitimate.[7]

A lower court opinion in this California case, reversed on appeal, illustrates other aspects of the problem: It was stated that the accused husband was not the father of the child, although he had consented in writing to the insemination; was named as the father on the birth certificate; represented to friends that he was the child's father and treated him as a son; and although there were four years of normal family relationship. The state adoption statute was held inapplicable because there was no written agreement by the accused to treat the child as his for all purpose. The statute providing for the adoption of an illegitimate child through acknowledgement was inapplicable since it applied only to the natural father. The statute providing for conclusive presumption of legitimacy did not apply since the problem here was paternity, and there was no evidence that the accused and his wife were cohabiting when the child was conceived.

Problems of the Parents. Important areas of concern for the husband and wife are evident in the previous discussion emphasizing the status of the child. Additionally, the issue of adultery has appeared in divorce proceedings. A 1921 Canadian case stated that AID could be considered sexual intercourse, and that the procedure without the husband's consent is adultery on the part of the wife.[8] A 1956 Illinois decision held that heterologous insemination with or without the consent of the husband constitutes adultery.[5] Another Illinois case (1945) stated that AID does not fit any of the definitions of adultery and denied a divorce on such evidence of adultery.[9]

The criminal aspects of adultery should also be mentioned, although the question of who is the adulterer might be troublesome, since state statutes, such as KSA 21-908 (1964), may provide for punishment by fine or imprisonment on conviction. A refreshing comment on this subject by the California court is as follows: "Adultery is defined as the voluntary sexual intercourse of a married person with a person other than the offender's husband or wife. It has been suggested that the doctor and the wife commit adultery by the process of artificial insemination. Since the doctor may be a woman, or the husband may administer the insemination, this is patently absurd; to consider it an act of adultery with the donor, who at the time of insemination may be a thousand miles away or may even be dead, is equally absurd."[7]

Problems of the Donor. The anonymity of the donor is essential not only to protect his reputation, but also to prevent the possibility of undesired transfers of affection or extortion. Theoretically, the donor might be liable for support of the child under bastardy laws, and it has been suggested that his potential liability might be large if several children are involved. Kansas law, KSA 62-2301 (1964), limits the action for support to an unmarried woman who has been delivered of or is pregnant with a bastard child. Under such wording, if the donor's identity can be ascertained, an action might be possible in the event of divorce, annulment, or death of the husband, unless other statutory provisions exist. Furthermore, the donor's wife, if she does not consent, might claim adultery as a basis for divorce, or the donor might himself be made a party in a divorce action brought by the husband of the inseminated woman. Theoretical criminal aspects relating to adultery have been previously discussed.

Problems of the Physician. The physician performing the procedure of artificial insemination is affected by the law of malpractice, as well as by special problems, some of which have been indicated above, relating to adultery, rape, assault and battery, or interference with the marital relationship. In some jurisdictions the possibility of falsification of the birth certificate, a misdemeanor, might even arise if the husband is listed as the father of the child. It is apparent that properly executed and ascertainable consent, as well as compliance with statutory requirements and professional standards are important.

An additional problem is the selection of the donor, since the medical standard here is not precisely defined, and since litigation in the event of a defective child is a possibility. Thus, while the donor's name should probably not appear, the record should nevertheless be complete in respect to appropriate data, including medical history, physical examination and laboratory tests. The Sanitary Code of the City of New York (1947, as amended in 1950), contained

regulations for the providing of seminal fluid for artificial insemination, which are of interest in this regard. It was provided that (1) donors shall have a complete physical examination; (2) donors shall have a standard serological test for syphilis and a smear and culture for gonorrhea not less than one week before the fluid is obtained; (3) no person suffering from any venereal disease, tuberculosis, or infection with brucella organisms shall be used as donor; (4) no person having any disease or defect known to be transmissible by the genes shall serve as donor; and (5) the donor and recipient shall have their blood tested for the Rh factor. If the recipient is Rh negative, only semen from an Rh negative donor shall be used. (Additionally, a record of the identity of the donor was required.)

Kansas Legislation

The *1968 Session Laws of Kansas,* chapter 272, published July 1, contain new legislation which permits the performance of heterologous artificial insemination and legitimizes the children, provided that specified statutory requirements are satisfied.

Section 1 provides that the technique may be performed in this state at the *request and with the consent in writing* of the *husband* and *wife.* Here a properly drafted and executed instrument appears essential, as well as certainty as to identity and marital status. The phrase "for the purpose of conceiving a child or children" appears self-explanatory. The technique is ordinarily a last resort in a situation where the husband cannot be the biologic father, although reasons for insemination may include Rh incompatibility or eugenic considerations. Purposes other than conceiving children, whatever these may be, are excluded.

Section 2 provides that any child or children *heretofore* or *hereafter* born shall be considered in law in all respects as a naturally conceived child *of the husband and wife so requesting and consenting.* This crucial section legitimizes the children provided that proper written consent is executed by the parents. It should specifically be noted that previously born or conceived children will also be legitimized upon the execution of such written consent, a procedure which might easily be overlooked. A special effort therefore seems indicated to inform individuals who may be affected by this legislation.

Section 3 provides that after the effective date of this act (July 1, 1968), the consent shall be executed and acknowledged by both the husband and wife and by *the person* who is to perform the technique, and provides for filing in the probate court and privacy of the information. It should be noted that the filing provision is permissive and not mandatory, but it would seem that such procedure must be recommended to assure the permanency of the record.

General comment. The act accomplishes its purpose of legitimizing the children, although additional publicity appears desirable to attract the attention of any individuals possibly affected by the retroactive provision. The problems of adultery and potential criminal implication also appear obviated, since the technique may now be lawfully performed, provided, of course, that there is compliance with the terms of the statute. The donor's problems, however, appear best solved by his anonymity, and the consent of the donor's wife should be obtained if a married donor is selected. No mention is made of the standards for selection of donors. The physician must therefore rely on his best judgment in the light of current medical practices and scientific knowledge. Finally, it is of interest, that the act does not limit the performance of artificial insemination to physicians since it refers only to the "person who is to perform the technique" and makes no mention of the word "physician."

HOUSE BILL No. 1701

AN ACT relating to children born through heterologous artificial insemination; regulating and requiring the written consent to the use of such technique; and providing for the filing and privacy of such written consent.

Be it enacted by the Legislature of the State of Kansas:

Section 1. The technique of heterologous artificial insemination may be performed in this state at the request and with the consent in writing of the husband and wife desiring the utilization of such technique for the purpose of conceiving a child or children.

Sec. 2. Any child or children heretofore or hereafter born as the result of heterologous artificial insemination shall be considered at law in all respects the same as a naturally conceived child of the husband and wife so requesting and consenting to the use of such technique.

Sec. 3. After the effective date of this act the consent provided for in this act shall be executed and acknowledged by both the husband and wife and the person who is to perform the technique, and an original thereof may be filed under the same rules as adoption papers in the probate court of the county in which such husband and wife reside. The written consent so filed shall not be open to the general public, and the information contained therein may be released only to the persons executing such consent, or to persons having a legitimate interest therein as evidenced by a specific court order.

Sec. 4. This act shall take effect and be in force from and after its publication in the statute book.

References

1. Gorney, R.: The new biology and the future of man. *UCLA L. Rev.* 15:273-356, February, 1968.

(Continued on page 501)



Ataxia, Dementia and Death

THE PATIENT was a 22-year-old white man who was admitted for the first time to the University of Kansas Medical Center with a chief complaint that he had been staggering for the preceding six weeks. Members of his family said that he behaved as though he was drunk at times, and that he was somewhat slow in responding to questions. There was no history of headaches, double vision, syncope or vertigo, and he had no difficulty performing such "skilled" acts as buttoning his clothes.

Ten years previously the patient had been treated for a granulomatous process.

The patient was mentally dull but oriented, semialert, and cooperative. His blood pressure was 110/70, and his pulse rate was 72. There was bilateral blurring of the optic disc margins. There were two or three shotty nodes in the right posterior occipital chain, and a 0.5 cm diameter, firm, rubbery, semifixed node in the left supraclavicular region. There was questionable ptosis of the right eyelid. His gait was ataxic, and his coordination was poor. He had moderate ataxia on the heel-knee test as well as moderate dysdiadochokinesia. Dyslexia and dysphagia were questionable. Babinski's sign was absent. There was no evidence of meningeal irritation. All sensory modalities were intact.

The usual laboratory screening tests were within normal limits. A left carotid arteriogram and brain scan were done. An electrocardiogram was normal. The ophthalmology consultant reported that he had bilateral papilledema without elevation, hemorrhage, or congestion, and that these changes were chronic.

During this admission the patient had a biopsy of the left supraclavicular node, but no definite diagnosis was made. He was dismissed to return for a pneumoencephalogram one week later.

Five days later he was admitted. He had had fairly constant headaches that were most severe upon arising for three or four days, but the headaches had now disappeared. He was oriented, but somewhat dull. Neurologically there was essentially no change. The ventricles were not remarkable. The laboratory work was essentially negative. One spinal tap showed a white count of 5 with 1 red cell, 74 mg per cent glucose, and 134 mg per cent protein. The colloidal gold curve was 1112220000. A repeat spinal tap showed 3 white cells, no red cells, a glucose of 53 mg per cent, and protein of 57 mg per cent. The colloidal gold curve was 3333221000.

When the patient was readmitted ten days later he had changed considerably. His wife said that he had deterioriated, having become progressively demented, confused, and unable to find his way around. He had not spoken very much since his last discharge from the hospital, but she was fairly certain that he was aware of his surroundings. On examination he did not know his own name, and did not recognize his wife. He could not answer questions intelligently.

He had some weakness of the right arm and leg. Within 48 hours there was a definite right-sided paresis. A Babinski was present on the right. He had loss of associated movements while walking, and he tended to fall backward. He was unable to stand on his left foot with his eyes closed. Speech and sensory systems, however, seemed intact. His blood pressure was 120/80; and his pulse rate was 80. The hema-

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Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, gynecology, and obstetrics, and pathology of the University of Kansas Medical Center as well as by the fourth year class of students.

tocrit and hemoglobin were normal. His white count ranged from 7,710 to 20,000, and the segmented forms ranged from 63 to 87 per cent. The platelets were reported as adequate. The urine contained 3+ protein, and was heavily laden with white blood cells and bacteria. There was a large amount of hemoglobin in one urine specimen. The blood urea nitrogen ranged from 14-19 mg per cent with a creatinine of 0.8 mg per cent. The serum sodium was 130-137; potassium, 3.8-4.3; chloride, 96-103; carbon dioxide, 21-24; calcium, 415; and phosphorous, 1.4 mEq/L. The cerebral spinal fluid showed 3 white blood cells, no red blood cells, 65 mg per cent glucose, and 100 mg per cent protein. The colloidal gold curve was 5554321000. The Kolmer was nonreactive. No acid-fast bacilli were seen. Cultures were negative.

Seven days later a repeat spinal tap was done which showed 8 white blood cells and 2 red blood cells, with 75 mg per cent glucose and 106 mg per cent protein. Liver function tests showed alkaline phosphate, 2.9 Bessie-Lowry units; SGOT, 52 units. The serum LDH was 676 units. The cerebrospinal fluid was normal. A ventriculogram, and a left carotid arteriogram were done. A spinal fluid protein electrophoresis showed: total protein, 0.100 grams per 100 ml; gamma globulin, 10 per cent; $alpha_1$ and $alpha_2$ globulin combined, 10 per cent; albumin, 65 per cent; and pre-albumin, 2 per cent. Encephalography suggested bi-frontal foci or brain disturbance. The patient progressively deteriorated. On his seventh hospital day he was started on 4 mg of dexamethasone every six hours. Later this was tapered and discontinued because of fever (spiking to 40° C) and obvious rales in both lung bases, and he was started on sodium cephalothin intravenously in a dose of 6 grams daily. He continued to deterioriate, remained responsive only to painful stimuli, and later had decerebrate posturing. He became more stuporous, progressively apneic, and died quietly on his twenty-fifth hospital day.

Dr. Mahlon Delp (moderator): All right, are there any questions for Dr. Broberg?

Michael Nielson (student)*: What was the granulomatous process, where was it located, and how was it treated?

Dr. William Broberg (resident in medicine): It was diagnosed as Hodgkin's disease, and it was treated with nitrogen mustard and radiotherapy. It was located in the supraclavicular area on the right.

Eugene Wasson (student): Had he had any treatment subsequent to the initial treatment ten years before?

Dr. Broberg: No.

Michael Pekas (student): What were the results of the tuberculin and histoplasmin skin tests? Was a Kveim test done?

Dr. Broberg: A Kveim test was not done. Tuberculin and histoplasmin skin tests were not done.

Kay Shackelton (student): Did the patient have any recent vaccinations or acute infections before his present illness?

Dr. Broberg: No.

Duane May (student): Was there ever a history of seizures, myoclonic jerks, twitches, or fasciculations?

Dr. Broberg: No.

Lawrence Monahan (student): Did the patient ever have nuchal rigidity or meningismus?

Dr. Broberg: No.

Dr. John Kepes (pathologist): I would like to mention that the protocol states that the lymph node biopsy was done here and no diagnosis was made. We did get the original lymph nodes and we agreed with the diagnosis of no disease, it was not abnormal.

Mr. Nielson: Did the patient ever have an elevated cerebral spinal fluid pressure?

Dr. Broberg: No.

Mr. Wasson: Was any increased blind spot or transient visual disturbance noted on examination?

Dr. Broberg: No.

Mr. Pekas: Were there any abnormal pupillary findings?

Dr. Broberg: No.

Carl Peck (student): The last cerebrospinal fluid was reported normal on the protocol. May we have the exact results of that?

Dr. Broberg: The white cells were 8; red cells, 2; 75 mg per cent glucose; 106 mg per cent protein. That is the one that I think is recorded. The one before that was: white blood cells, 3; no red blood cells; 65 mg per cent glucose; 100 mg per cent protein. Essentially the same.

Miss Shackelton: Were all bacterial, mycotic, AFB cultures, direct smears and India ink preps in the cerebrospinal fluid negative?

Dr. Broberg: They were. Those that were done were negative.

Mr. May: If done, what were the results of the cerebrospinal fluid viral cultures?

Dr. Broberg: I do not know.

Mr. Nielson: Did you feel that he had cerebral edema at the time you gave the dexamethasone?

Dr. Broberg: There was a possibility of his having it.

Mr. Wasson: If so, why was sodium cephalothin given?

Dr. Broberg: He had a fever, and I felt he had pneumonia.

Mr. Monahan: The emphasis was on sodium given concomitantly with dexamethasone for cerebral edema?

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* Although a student at the time of the conference in September, 1967, he, like the others referred to as students, received the M.D. degree in June, 1968.

Dr. Broberg: There was no overlap.

Dr. Delp: Are there any other questions?

Miss Shackelton: What was the patient's temperature course during the last few days?

Dr. Broberg: About the sixth hospital day he became slightly febrile. On his tenth hospital day he spiked up to 40°C, and he remained around that, never becoming normal.

Mr. May: What were the results of the sputum and blood cultures during the last hospital admission?

Dr. Broberg: His blood cultures were negative, and his sputum cultures showed pneumococci primarily.

Mr. Wasson: Could you give us a better explanation of the patient's terminal event?

Dr. Broberg: He was in a deep coma. He did have some Cheyne-Stokes respirations.

Dr. Delp: Is that satisfactory, Mr. Wasson?

Mr. Wasson: Yes, sir.

Dr. Harry H. White (neurologist): I would like to make one comment concerning a question of one of the students on the presence or absence of seizures. This patient did have, on the last few days of life, jerky movements of first one hand and then the other. He never did have major seizures, but he did have some myoclonic seizures.

Dr. Robert P. Hudson (internist): Was the last urinalysis the only abnormal one he had in all his hospital admissions?

Dr. Delp: He had two urine specimens with albumin. The rest of them were all right. I think this must have been after he had a catheter in place.

Dr. Chien Liu (infectious diseases): Do I understand that he did not have immunosuppressive therapy shortly before he entered the hospital?

Dr. Broberg: That is correct.

Dr. Liu: Was the only time he was treated for Hodgkin's disease ten years ago?

Dr. Broberg: Yes.

Dr. Delp: Are there any other questions? Mr. May will you please demonstrate the x-rays?

X-Rays

Mr. May: First is a PA of the chest taken on June 24, 1967. The bony structures are unremarkable. The heart and great vessels are within normal limits. The lung fields are clear. We interpret this as a normal chest.

Next, is a lateral view of the skull taken on the same day. The cranial vault appears intact. The sella turcica is normal. The posterior clinoids show no signs of destruction. There is a slight calcification in the region of the pineal gland, but I see no evidence of pathology on this skull film.

A brain scan taken approximately one month later shows some increase in the uptake of activity on top and in the back. I interpret this as a normal variation of uptake in the superior sagittal and transverse sinuses. The next film is a left carotid arteriogram taken the following day. The course of the internal carotid artery is normal; the area through the siphon is normal; the takeoff of the anterior cerebral artery is normal as well as the arterial tree; the middle cerebral artery takeoff is normal as well as the arterial tree. I see no evidence of space-occupying lesions. I interpret this as an normal arteriogram. In an AP of the arteriogram the anterior cerebral artery is in the midline; there is no sign of displacement; the middle cerebral artery takeoff is normal; and there are no signs of displacement or of space occupying lesions. This is a normal arteriogram. In the ventriculogram taken on August 3, 1967, the burr hole is shown, the ventricules are of normal size, but there is some increased air over the cortex. I interpret this as showing some degree of cortical atrophy.

In a chest film taken on August 9, 1967, towards the end of his hospital course *(Figure 1),* the bony structures and the heart are within normal limits, but there is an infiltrate all through the left lung and some in the right lung. I interpret this as being compatible with bronchopneumonia or stasis.

Dr. Delp: Thank you, Mr. May. Mr. Monahan will now present the differential diagnosis.



Figure 1. Chest film taken August 9, 1967.

Discussion

Mr. Monahan: We are challenged by the presentation of a 22-year-old white man who ten years ago was treated for Hodgkin's disease, and who was recently admitted because of a six-week history of staggering gait. The patient's subsequent disease was characterized by multifocal central nervous system signs of increasing dementia, ataxia, loss of associated movements, pyramidal tract involvement, coma, ultimate decerebrate rigidity, and death.

Although considered in the general differential diagnosis, the following broad classifications of central nervous system diseases are ruled out because of atypical history, physical findings, clinical course, laboratory and x-ray findings: genetic, congenital and developmental diseases; metabolic and nutritional disorders; cerebrovascular diseases; trauma; diseases of the neuro-cutaneous syndromes; motor system and extra-pyramidal systems; epilepsy; and primary neoplastic disease.

Because of the patient's multifocal central nervous system symptoms and signs associated with the first zone colloidal gold curve and high spinal fluid protein the following disease classifications are considered more carefully: secondary or metastatic neoplastic diseases; degenerative diseases; inflammatory diseases, both infectious and non-infectious; and demyelinating diseases.

Nervous system involvement of Hodgkin's disease may take the form of spinal cord and peripheral nerve compression, rare direct invasion of the brain substance and diffuse involvement thereof, and increased susceptibility to intercurrent central nervous system infections, notably viral (herpes) and fungal (cryptococcosis).

Jakob Creutzfeld's disease is a rapidly progressive degenerative central nervous system disease which resembles the course of our patient to a large degree, but lack of the conspicuous spinal cord involvement characteristically seen in this malady prompts us to favor a more likely diagnosis.

Tuberculosis, cryptococcosis (and other central nervous system fungal diseases), and (rarely) sarcoidosis may present the symptoms and findings of our patient, but the absence of meningismus and incompatible cerebrospinal fluid findings or cultures render these diagnoses unlikely.

Neurosyphilis is a complication of a disease which should be included in a complete differential diagnosis, but is ruled unlikely in view of inadequate history and laboratory findings.

Post-vaccination and post-infectious encephalitis may give the course followed by our patient, but it is ruled out because of incompatible history and atypical colloidal gold curve (characteristically second zone).

Subacute inclusion body encephalitis (known as Van Bogaert's subacute sclerosing leukoencephalitis) is characterized by insidious onset, progressive cerebral dysfunction of weeks to months duration, and symptoms presented by this patient. The etiology is unidentified, although again association with viral infections (herpes) has been noted. Although this disease certainly cannot be ruled out, we believe we have a better explanation.

The leukoencephalopathic demyelinating diseases may present a wide divergence of symptoms, due to the random and patchy breakdown of normally formed myelin. Subacute cerebellar degeneration with neoplasm, post-vaccination and post-infectious encephalitis, and acute and subacute sclerosing leukoencephalitis, already mentioned, may give these pathological changes. In addition to these three are three other leukoencephalopathic demyelinating diseases.

Acute multiple sclerosis is a fulminating and rapidly progressive disorder producing paralysis or severe weakness of the limbs, numbness, parasthenia, incoordination, blindness, speech and bladder difficulties, and mental clouding to the point of stupor. The cerebrospinal fluid is usually under normal pressure with a slightly elevated mononuclear cell count or total protein content or both, in 30 per cent of the cases. A first zone elevation in the colloidal gold curve is common, and the electroencephalogram is abnormal in a majority of cases.

Schilder's cerebral sclerosis is related pathologically to multiple sclerosis. The characteristic lesions are large bilateral areas of demyelination in the brain, where its general reaction with associated swelling and edema may be sufficiently severe to produce increased intracranical pressure with associated headache, vomiting, and papilledema. Seventy-five per cent of cases begin before the age of twenty, but it can occur at any age. The onset is usually insidious, but may be acute. A typical natural history is presented by today's patient. Although seizures may be an early symptom in children they are uncommon in adults. Abnormal laboratory findings are an increased cerebrospinal fluid pressure and protein content with abnormal gamma globulins. Electroencephalographic findings vary from paroxysmal discharges to focal slowing. The course varies from days to years. Terminally, patients are severely demented and often exhibit a decerebrate state. Although we are unable to rule out acute multiple scleroses or Schilder's disease, we feel another diagnosis better explains our patient's disease.

Progressive multifocal leukoencephalopathy is a disease characterized by the occurrence of widely disseminated central nervous system lesions that are typically demyelinative in that there is total disappearance of myelin sheaths with relative preservation of axis cylinders. Lesions vary greatly in size, from microscopic ones to massive foci, involving large

parts of the cerebral hemispheres, and perhaps brain stem and cerebellum. There are no changes in the form or contents of the blood vessels which would suggest an ischemic or angiopathic basis for the cerebral lesions.

The disease is extremely rare and almost never occurs as an independent one. Instead it appears in a setting of long standing chronic disease. Neoplasms are forerunners in some 70 per cent of patients, while non-neoplastic granulomatoses or reticuloendothelioses precede in about 20 per cent. More common in men than women and only occurring in adults, the disease has a rapid evolution with an average course of three to six months from earliest appearance until death.

Widespread dissemination of the neuropathologic lesions results in a widely varied clinical picture of neurologic signs and symptoms. The natural history of this disease is seen in our patient. Convulsions, though described, are rare.

Laboratory results usually reveal normal cerebrospinal fluid, except for occasional increases in white cells (usually lymphocytes) and elevations of total protein. Pneumoencephalography, angiography, and radio-isotope studies are all usually normal. The electroencephalograph is almost always nonspecifically abnormal.

The eitology of the disease is hypothetical, but it has been suggested that the lesions of progressive multifocal leukoencephalopathy may well be the result of a viral infection of the central nervous system in patients whose immunological responsiveness has been impaired by the presence of certain pre-existing chronic diseases such as Hodgkin's disease, lymphomas, or sarcoidosis. In addition, one could well take into account the immunosuppressive effects of some of the forms of treatment that patients with these chronic diseases often receive such as radiation, corticosteroids, and antimetabolites.

Although we cannot definitely rule out Hodgkin's disease, subacute sclerosing leukoencephalitis, acute multiple sclerosis, or Schilder's disease, we feel that all the facets of this case can best be explained by the diagnosis of progressive multifocal leukoencephalopathy. Although there is no one clinical feature that definitely indicates the presence of this disease during life, the over-all picture with its constellation of positive and negative findings may permit recognition of this condition before death, as has occurred in several instances in the literature. The ultimate proof, however, rests with the pathological examination.

Dr. Delp: Thank you, Mr. Monahan. Now, may we learn where there are alternative diagnoses in the group?

Mr. Nielson: Subacute sclerosing leukoencephalopathy would be my alternate.

Mr. Wasson: Inclusion body encephalitis.

Mr. May: Inclusion body encephalitis.

Dr. Delp: Any other suggestions you might make, Mr. Monahan?

Mr. Monahan: I do not think we can rule out any of these above mentioned diseases although the chronic sclerosing leukoencephalitis is my second choice.

Dr. Delp: All right, what about the immediate cause of death?

Mr. Nielson: I think it was pneumonia with an attendant hypoxia leading to respiratory arrest.

Mr. Wasson: He may have herniated his cerebellar tonsil with compression of the medullary respiratory center.

Mr. Pekas: It could have been due to acute involvement of the brain stem by the disease process, but I doubt this. I tend to support Mr. Nielson's idea.

Mr. Peck: I vote for respiratory failure secondary to direct involvement of the brain stem.

Miss Shackelon: Progression of the basic disease process.

Mr. May: I think he had a progression of the basic disease process complicated by the anoxia, caused by the pneumonia.

Mr. Monahan: In view of the positive sputum cultures, x-ray, and the comatose nature of the last week, I favor pneumonia.

Dr. Delp: Mr. Wasson, how do you explain those colloidal gold curve figures?

Mr. Wasson: Colloidal gold is indicative of an increased protein in the cerebral spinal fluid and this can occur in demyelinating diseases, in inflammatory disease, and with tumors. I would choose to explain this on the basis of demyelinization.

Mr. May: It reflects the gamma globulin-albumin ratio. It is well known that the etiology of this involves some sort of an immunological phenomenon. Gamma globulin is associated with an immunological phenomenon, and we would expect to see a rise in the gamma globulin colloidal curve.

Dr. Delp: Mr. Nielson, do you think there is anything unusual about this patient's having gone ten years without any evidence of his original disease being present?

Mr. Nielson: No, I do not think this is unusual. There is often a long period of time between initial onset of the disease which has been immunologically suppressed, and an attendant, or other, disease which comes upon this.

Mr. Peck: Yes. I think it is a little unusual.

Miss Shackelton: Multifocal leukoencephalopathy can occur after this long a period. It may be a little unusual for him not to have recurrence of his Hodgkin's over this long a period.

Dr. Delp: Miss Shackelton, do you think there is a possibility that he did not have Hodgkin's disease at the time of death?

Miss Shackelton: I think there is a possibility that he did not have Hodgkin's disease.

Mr. Monahan: No. I disagree.

Dr. Delp: Do you think he did have Hodgkin's disease at the time of death?

Mr. Monahan: I am not sure we can rule out the other lymph nodes being a part of Hodgkin's disease.

Mr. Wasson: I think he was cured of his Hodgkin's disease.

Dr. Delp: Do you think he was totally cured and recovered?

Mr. Wasson: Yes.

Dr. Delp: To what do you attribute that cure?

Mr. Wasson: To the irradiation, and to the nitrogen mustard.

Mr. Pekas: I will support that.

Mr. Peck: I do not think he was cured.

Mr. Neilson: I do not think he was cured either. I think that whatever he had was superimposed on the presence of Hodgkin's disease.

Dr. Delp: This patient died in August. He was apparently perfectly well the first of May. Rather suddenly, one day, he got up in the morning and he staggered about, and that same day he had difficulty driving his car. This man at that time weighed 172 pounds; he was perfectly healthy; he was doing hard work. Do you think the sudden onset of these signs and symptoms, which came on with some dramatics, is unusual?

Mr. Pekas: I do not think it would be unusual, I think it would be compatible with our diagnosis. I think if we are to go along with the hypothetical etiology of the disease that this is due to possible viral infection of the cerebral spinal fluid, with some immunological problems.

Dr. Delp: Do you think he had the viral infection in April?

Mr. Pekas: It is possible.

Dr. Delp: Mr. Monahan, do you think there is anything unusual about the sudden appearance of these signs and symptoms?

Mr. Monahan: No, I do not. In view of the fact that this could well be explained by initial cerebellar involvement of the process, and I would particularly like to point out the subsequent progressive nature of it, even though this particular onset was sudden.

Mr. May: This is very compatible with the course of this illness.

Mr Nielson: I agree.

Mr. Wasson: I think he could have had a subclinical or a mild viral infection preceding the onset.

Dr. Delp: All right, let us hear what the staff has to say. Dr. White?

Dr. Harry H. White (neurologist): I was the first staff member to come in contact with this body. At that first visit we were able to get from the history the fact that he had had what was called at that time, lymphosarcoma, and was later changed after we looked at the slides, to Hodgkin's disease. It is apparent that if someone has Hodgkin's disease, 95 per cent of the neurological complications of Hodgkin's can be accounted for by compression of the spinal cord in the extradural space, and also by involvement of nerve roots by direct pressure. Whenever someone with Hodgkin's disease has involvement of the central nervous system, there is no question that you are dealing with something rare. When we admitted this boy to the hospital he had only cerebellar signs and increased intracranial pressure. Our first problem was to rule out the possibility of a fungal meningitis, or a brain abscess, and this was my admission diagnosis. The subsequent course proved by spinal fluid and radiographic findings that these two things were not present. Before he died he probably had one of these non-specific, degenerative encephalitic conditions associated with occult carcinoma or lymphoma. My second diagnosis was microgliomatosis which is a diffuse lymphoma in which all the microglial cells of the brain are turned into neoplastic cells, so-called microgliomatosis. I did not think he had involvement of the nervous system with Hodgkin's disease. This is exceedingly rare. We discussed the possibility of progressive multifocal leukoencephalopathy, but his clinical picture really did not suggest that to us because his initial symptoms were those of increased intracranial pressure which is almost unknown in progressive multifocal leukoencephalopathy. More importantly, he had signs, until late in his illness, of involvement of gray matter; whereas progressive multifocal leukoencephalopathy is a white matter disease. Most cases of patients reported with this condition have had early and prominent involvement of white matter. If he had had progressive multifocal leukoencephalopathy, I would expect him to have had hemiparesis, striking ataxia (which would have persisted), and cranial nerve palsy rather than having signs of increased pressure, and the late appearance of signs indicative of involvement of white matter. My final diagnosis was that he had one of these nonspecific, degenerative conditions affecting the brain in a widespread fashion, associated with occult carcinoma or lymphoma. My second diagnosis was microgliomatosis. As you will see, both of these subsequently proved to be wrong.

Dr. William P. Williamson (neurosurgeon)*: I was not here when this boy was admitted, and I have tried to read through the history to find what problems the neurosurgeon was called in to help solve. I gather he was called because the patient did have papilledema. I am told that his measured spinal fluid pressures were normal. This is one of the things the pathologist will have to explain to me. I do not know whether he had increased intracranial pressure or not. This brings up the question: Did he have an

* The late Dr. Williamson was professor of neurosurgery at the University of Kansas School of Medicine until his untimely death in November, 1967.

optic neuritis giving him a papillitis as a manifestation of the disease rather than an expression? Secondly, I assume that they were looking for some mass to be either treated or biopsied. I do not understand why the ventriculogram was done after a pneumoencephalogram unless the pneumoencephalogram showed no filling, or was unusual. It was reported as being normal. Unless the ventriculogram was done to achieve a brain biopsy, it appears to me this would have been a proper candidate for a brain biopsy at the time of the ventriculography. Here is a patient who obviously had diffuse central nervous system disease, the exact etiology cannot be pinpointed, progressively deteriorating, and we are desperate for a histologic diagnosis. I can only contribute by asking if a brain biopsy was done, what did it show, and if not, why was it not done? I do not know what he had, but I do not believe it was a focal mass.

Dr. A. Theodore Steegman (neurologist): I have nothing to add to the speculation about the pathology, but I would like to make known some things pointed out in the protocol. Apparently this patient's first symptoms were related to cerebellar dysfunction, then the encephalitis involvement would be farther forward. I was thinking that in the rare cases where Hodgkin's disease produces actual pathology in the brain, cases have been described where they had involvement of the optic nerves fairly early, as well as the hypothalamus.

Dr. Dewey K. Zeigler (neurologist): I would like to make a couple of points in addition to what has been said. I would like to second Dr. White's emphasis that this man's course was very suggestive, in retrospect, of the gray matter being involved early. This was one of the very puzzling aspects of his condition. What we ordinarily see in young people with mass involvement of the central nervous system are clinical signs referable to white matter involvement. For example this occurs in Schilder's disease (which is a massive involvement of the white matter) and in acute multiple sclerosis, and means that the patients have spasticity, ataxia, optic nerve neuritis, and various focal neurological disturbances. This patient had notable absence of focal neurological disturbances, and this puzzled us from the beginning. The only thing really focal that we noted was the ataxia, and it was not severe. This was accompanied by a very striking change in personality, which was early and then progressive. This actually should have been a clue to us. It is important because this indicates that the cortical mantle is usually involved. When patients have these striking disturbances in behavior and personality with a relative paucity of focal neurological signs, it usually indicates the white matter.

The whole subject of what may or may not be degenerative neurological disease is rapidly being opened up. The strange new disease called "kuru" has every aspect of a degenerative neurologic disease, furthermore it tends to run in families, yet it has been transmitted to chimpanzees by a worker at the National Institutes of Health. It almost unquestionably has to do with an infectious agent. Pieces of information are rapidly indicating that many diseases that we had formerly thought of as degenerative or of unknown etiology may be related to infectious agents. As a practical matter, whenever we have any difficult neurological problem it is always wise to consider this, and perhaps throw the book at these patients in terms of what we have available for isolation of infectious agents.

Dr. Delp: Dr. Kepes, please give us your report.

Report of Pathologist

Dr. John Kepes (pathologist): The discussion by the students was excellent. Before doing the autopsy we had the same possibilities going through our minds. We knew that the patient had Hodgkin's disease (in reviewing the old slides there was no question of his having had Hodgkin's disease), and wondered if there might be some relationship between that and his present central nervous system problem. One possibility, direct involvement of the brain by Hodgkin's disease is not common, but as is frequently the case, a report of such a case was just published in the October issue of the *Archives of Neurology*.

The second possible diagnosis would be that of the students, and a very attractive one at that, because it is an interesting disease. Progressive multifocal leukoencephalopathy, to my knowledge, has been reported only with relation either to Hodgkin's disease, leukemia, or some of the other lymphomas. The brain of a patient with progressive multifocal leukoencephalopathy shows patches of demyelination which actually look a little like multiple sclerosis. One cannot tell the difference on the myelin stain alone. The feature that makes it unusual is the marked glial activity. The nuclei become enlarged, and there is an increase in the DNA producing monstrous forms of glial nuclei in oligodendroglial cells. This can be a very serious problem for all pathologists because it looks like glioblastoma multiforme. There is so much abnormality of the nuclei that astrocytes look like malignant neoplastic cells. This condition is believed to be a viral disease due to some virus which is permitted to flourish and invade the brain because of the weakening of the immune mechanisms.

Because of the fact that this patient's symptoms started with ataxia, the third possibility that crossed our minds was subacute cerebellar cortical degeneration secondary to malignancy elsewhere. We had a case like this some time ago, the patient had a primary carcinoma in the ovaries and the Purkinje cells simply disappeared.

With these possibilities in mind we did the autopsy, and we did not find any tumor in the brain.

There were some lymph nodes still involved with Hodgkin's disease. One outstanding area was the carina where there was a rather large mass hiding between the two main bronchi. The other area was the portal area of the liver. There were some enlarged lymph nodes, they were firm, fleshy and fibrous and they were matted together in groups *(Figure 2)*. Microscopically these nodes showed a fine reticular type of fibrosis that is characteristic of Hodgkin's



Figure 2. Enlarged lymph nodes in the porta hepatis show fibrous fleshy cut surface consistent with Hodgkin's disease.

disease. In *Figure 3* one can see the trabecular fibrosis mixed with masses of lymphocytes. This would not be diagnostic of Hodgkin's. There are some bands of fibrosis indicating the chronicity of the process, but this is not a healed case of Hodgkin's. Those who expressed doubts about facts of nitrogen mustard and x-ray completely irradicating the disease in this patient are right. There are many plasma cells here and atypical large reticulum cells which in some instances have the typical appearance of the Reed-Sternberg cell. They have double nuclei and fused eosinophilic nucleoli, but they are still malignant reticulum cells. He also had a certain degree of pneumonitis, but I do not think he died because of pneumonia. I was somewhat interested in the thyroid because he received radiation to the neck many years ago, and I wondered if perhaps he started developing some papillary carcinoma. There was no carcinoma, but there was a disruption of the thyroid architecture—nodularity and scarring—which may or may not be related to radiation.

There was inflammation in the brain, and this was the most outstanding feature. Starting from the meninges the inflammation could be followed into the Virchow-Robin spaces, between the portions of the cortex into the sulci. There was perivascular chronic inflammation *(Figure 4)*.

The inflammation could be seen deep in the cerebral parenchyma. These cells were mostly lymphocytes with an occasional plasma cell indicative of

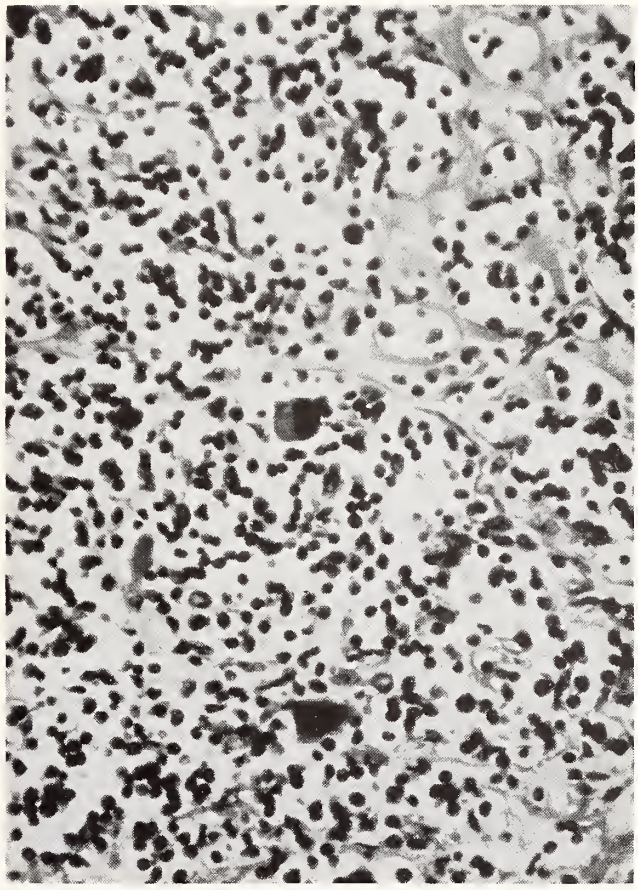


Figure 3. Hodgkin's granuloma of lymph node with lymphocytes bizarre multinucleated giant cells and fine reticular fibrosis (H.E.).

encephalitis. I felt that, as Dr. Zeigler and Dr. White pointed out, the gray matter was indeed involved in this case. In other words, it was not one of those post-infectious or post-vaccination type of encephalitides. The nerve cells, as such, were knocked out by this process, and there was microglial reaction destroying what was left of the nerve cells (neuronophagia). The cerebellum was of special interest because the patient had initial ataxia. There was some infiltration by microglial elements in the molecular layer. There were quite a few Purkinje cells present. There was encephalitis involving the cerebellum as well. The real dramatic findings, of course, were the inclusion bodies inside the cytoplasm, and nuclei of many nerve cells. The later were of the Cowdry type A group because they caused enlargement of the nucleus and had a halo around the inclusion body and a thin nuclear membrane surrounding the halo *(Figure 5)*. Glial cells also had inclusion bodies *(Figure 6)*.

The diagnosis is inclusion body encephalitis. It has been mentioned that this disease was first described in this country by Dawson in the early thirties. Later, in 1941, Ludo Van Bogaert in Belguim, described his so-called subacute sclerosing leukoencephalitis. Other groups, Pette and Doring in Germany, described

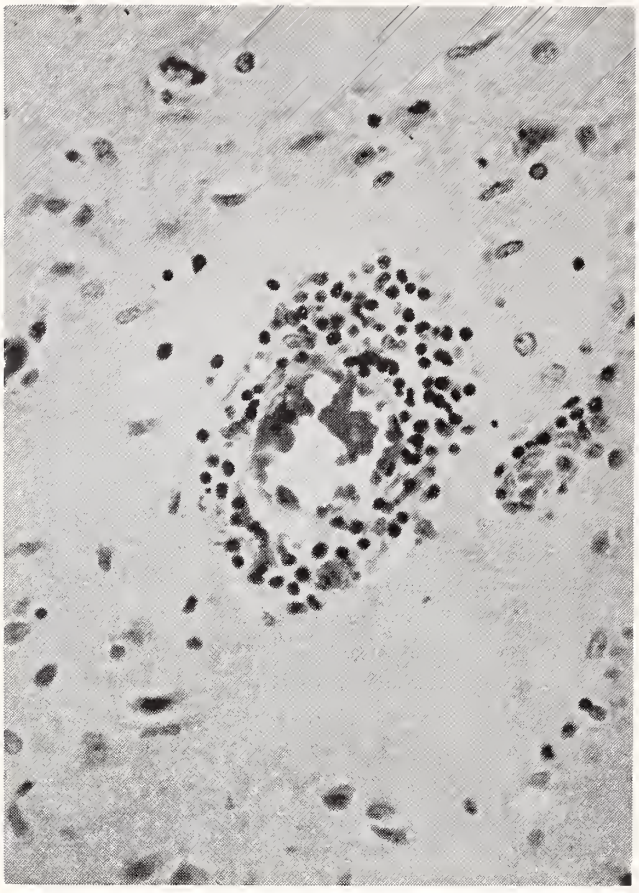


Figure 4. Perivascular lymphocytic "cuffing" in the brain indicating inflammation.

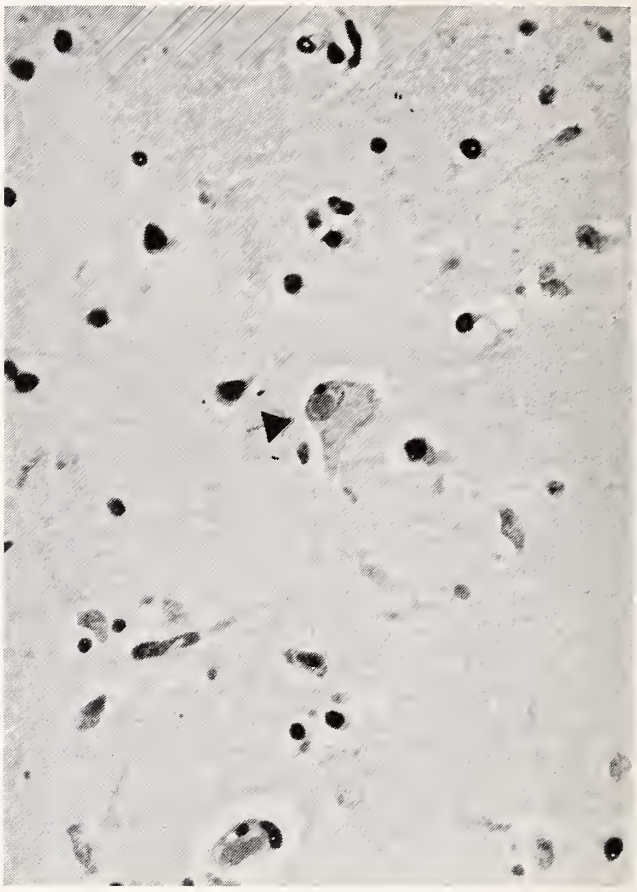


Figure 5. Section of the cerebral cortex showing large inclusion body in nucleus of nerve cell in center (arrow) (H.E.).

what they called panencephalitis nodosa. It is believed, generally, and more and more people accept this idea, that these are all the same disease. When Van Bogaert went back to his own cases, he began to find more and more inclusion bodies. Whether the white matter is involved or not depends on the chronicity of the disease. The longer the disease lasts the more gliosis there will be in the white matter. This patient had practically no white matter involvement in the sense of sclerosis. The question now is: Is there any relationship between the underlying Hodgkin's disease and the patient's encephalopathy? As I said before, in the case of progressive multifocal encephalopathy, the connection is quite clear, but inclusion body encephalitis is a disease that anyone can have. We have had several cases in the pediatric department here, but it seems to me the course of the disease in today's case was atypical. There were certain features, pathologically, that would probably be connected to the underlying weakness of this patient's immunological resistance. I had in mind the rather rapid course and the absence of sclerotic changes in the white matter. The question, of course, is: What is the etiology of this disease? We could not culture viruses from the brain, but we were lucky in another respect because some of the tissue was handed over to Dr. Chien Liu for immunological studies, and I would like to ask him to comment on the findings which are very important in pointing to the present suspected etiology of this inflammation.

Dr. Chien Liu (infectious diseases): As you know, the diagnosis of viral disease may be extremely difficult. This is usually done by isolating the agent or by immunological techniques. A portion of the brain was frozen and was made available to us for study. In the paraffin sections of the brain many neurons had inclusion bodies in the cytoplasm and in the nucleus as shown by Dr. Kepes. There are two diseases of the central nervous system in which inclusion bodies are usually seen in the neurons. The first one is encephalitis due to *Herpes simplex* virus. Characteristically herpes infected cells have intranuclear eosinophilic inclusion bodies. The second one is Dawson's disease which is also called subacute sclerosing panencephalitis (SSPE). When we cut frozen sections from the brain specimen of this patient and stained them with different fluorescent antibody conjugates, the anti-herpes simplex conjugate did not show any fluorescent staining. In sections stained with measles fluorescent conjugate, however, many fluorescent cells were seen. Some neurons showed fluorescence in the nucleus, and some showed fluo-



Figure 6. Inclusion bodies are also seen in nuclei of glial cells (H.E.).

rescence in the cytoplasm which represented the presence of measles antigen.

Although the etiology of SSPE is still unknown, there is much evidence that measles virus infection may play an important role. These patients usually had high titers of measles antibody in both their serum and cerebrospinal fluid. Electron microscopy has demonstrated particles in the cell nucleus consistent wtih myxovirus of which measles is one. By immunofluorescent staining Freeman found measles antigen in the neurons of the brain specimens. Our findings with immunofluorescent staining in this case confirmed the observations published by Freeman. On the other hand many investigators (including ourselves) have not been able to isolate measles virus from the brain tissues of SSPE patients.

Dr. Delp: Are there any questions?

Mr. Wasson: Was there a history of this man having a preceding myxovirus infection before coming into the hospital?

Dr. White: Not to my knowledge. I do not think his children had either been immunized against measles, or had had measles.

Mr. Wasson: Any pets? I know that in the Shaw's article they implicated a dog who died of distemper.

Dr. White: I do not know whether the family had a dog.

Dr. Jacob K. Frenkel (pathologist): It seems obvious this patient did not have measles, but this sort of thing never happens after measles, so I think it is imporant to point out that there are in this myxovirus group cross-reacting antigens, and certainly the canine distemper is something that is much more related to the clinical picture.

Dr. Kepes: There is some disturbing evidence, or coincidence, but three cases were reported in Atlantic City at the annual meeting of the American Association of Neuropathologists. Some clinically typical subacute inclusion body encephalitis developed between three and four months after measles vaccination in children. I am not sure that we are only dealing with a group reaction rather than a measles virus proper. There are some aspects of the distemper virus which, as you know, causes a demyelinating disease in dogs and not this type of inflammation.

Dr. Delp: Are there any other questions?

Question from the audience: I am interested in Dr. White's diagnosis of microgliomatosis as a second choice. Thus far I have only read about it in Dr. White's book. Would you explain that to me, Dr. White?

Dr. White: What is ordinarily meant by that term is primary lymphoma of the nervous system in which the microglial cells, which as you know are derived in origin from the mesoderm, undergo malignant changes. There have, in fact, been a number of cases reported as primary microgliomatoses that either coexisted with peripheral specific Hodgkin's disease or lymphoma, or have occurred *de novo* without any peripheral lymphoma at all. In other words, lymphoma primarily maintains its origin and lack of dissemination elsewhere in the nervous system. This is really what I meant by the term microgliomatosis.

Anatomical Diagnoses

SUBACUTE INCLUSION BODY ENCEPHALITIS.

HODGKIN'S GRANULOMA involving perihilar, carinal and periportal lymph nodes.

BRONCHOPNEUMONIA of the base of the left lung, moderate.

EDITOR'S NOTE: As this goes to press there is an interesting report of a patient with subacute sclerosing panencephalitis and high measles antibody titers in the serum and spinal fluid who recovered spontaneously but who had residual intellectual impairment. *New England Journal of Medicine,* 279:126-129, July 18, 1968.

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Our greatest pretenses are built up not to hide the evil and the ugly in us, but our emptiness. The hardest thing to hide is something that is not there.—Hoffer



CP + T

Newsletter

Diuretics

THE RECENT MARKETING of two new diuretic agents for oral and intravenous administration meets a therapeutic need in management of patients in whom rapid, potent, diuretic effect is required or who are unable to keep orally administered medicines down.

Furosemide (*Lasix,* Hoechst) (4-chloro-N-furfuryl-5-sulfamoylanthranilic acid) is available in oral as well as a new intravenous form. Administered orally in single doses of 40 to 240 mg, it produces rapid renal excretion of chloride>sodium>potassium with the diuretic effect vanishing in two to four hours. The half-life of furosemide in the plasma is approximately 60 minutes. The drug received FDA approval for intravenous use in the spring of 1968, with dosage recommendations of 20 to 40 mg given as a single, slow injection. The onset of action is observed usually within 5 to 15 minutes and lasts one to two hours. The dose may be repeated at not earlier than two-hour intervals. In addition to producing predominant chloride and sodium loss, free water clearance is occasionally observed with this drug making it of particular use in patients with dilutional hyponatremia. Potassium loss, ordinarily, is not as great as with other agents but may reach considerable proportions in some patients for reasons not understood. Because potassium loss may occur, furosemide must be given under close observation in patients taking digitalis preparations. Periodic measurement of serum electrolytes, particularly potassium, and appropriate observation for electrocardiographic changes are mandatory in such patients. The chloruresis induced may lead to a hypochloremic alkalosis and loss of patient responsiveness so that administration of chloride replacement is indicated during prolonged use. Usually we use arginine HCl, 5 gms, one to three times daily, which provides 25 to 75 meq of chloride.

Toxic reactions include skin rashes, thrombocytopenia and possible leucopenia, dizziness, nausea, vomiting, and diarrhea. Hyperuricemia may occur and acute gouty attacks precipitated during use of furosemide. The effect on glucose tolerance is not particularly striking. I have had no hesitancy in using the drug in patients with decreased glucose tolerance when a potent diuretic was required. The majority of the problems encountered with the use of this agent are related to over-zealous use without proper attention being paid to water balance and electrolyte effects. Since the drug is potent, orthostatic hypotension may occur if significant plasma volume contraction is produced by the diuresis. This is particularly true with use of the intravenous preparation so that this form should be reserved for hospitalized patients. Muscle cramps, probably related to electrolyte shifts, may also occur. When these unwanted effects occur, liberalization of salt intake for the patient may abolish the undesirable effects while allowing diuresis to continue. Used judiciously and with recognition of its potency, it is a safe diuretic of distinct advantage when rapid diuresis is desired in hospitalized patients.

Prolonged ambulatory patient use is not well established yet as to dosage and timing of administration. It has been my practice to use 40 to 120 mg in one dose in the morning every other day in patients requiring an agent more potent than one of

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center. This newsletter was written by Robert T. Manning, M.D., Associate Professor of Medicine and Biochemistry.

the thiazide group. Once again, care must be taken to avoid hypochloremia and hypokalemia with prolonged administration.

The second agent, ethacrynic acid (*Edecrin,* Merck), [2,3-dichloro-4-(2-methylene-butyryl)-phenoxy] acetic acid, is likewise available for oral and intravenous use and is even more potent than furosemide. Administered in doses of 50 to 100 mg, it produces a profound loss of water and electrolytes and, therefore, is of particular use when patients require rapid depletion of plasma volume as in pulmonary edema. The immediate effect is frequently dramatic and salutory in such patients, but more clinical experience will be required before any dogmatic statements can be made regarding its medium or long range effectiveness in the management of plasma expansion problems. As with furosemide, overzealous usage may produce sufficient contraction of plasma volume to induce hypotension with patient and physician then being impaled on the horns of a disastrous dilemma. In my belief, it should be reserved for acute, time-critical problems just as the rapid acting digitalis preparations are reserved for emergent situations and not used for sustained management of patients. I do not, therefore, use it for ambulatory patients.

The most frequent patient complaints are of anorexia, nausea, vomiting, and diarrhea. As with furosemide, hyperuricemia and acute gout have been reported with use of ethacrynic acid as well as decreased tolerance of glucose, most notably in patients with liver disease. Neither preparation should ever be given intramuscularly or subcutaneously.

The mechanism of action of these two agents is, as yet, not clearly elucidated. They both affect water and electrolyte movement in the nephron with a major site of action being in the loop of Henle so that the concentrating action on the tubule is diminished or abolished. Since this causes delivery of greater quantities of tubular fluid to the distal exchange site, both agents enhance the effect of distally acting diuretics such as spironolactone (*Aldactone-A,* G. D. Searle Co.), an aldosterone inhibitor. Furosemide, particularly when used with spironolactone, creates a pharmaco-physiologic state that may be most beneficial to patients with excessive aldosterone secretion as a major cause of their edematous state, such as the cirrhotic patient with ascites or the patient with the nephrotic syndrome.

Both drugs should not be used in oliguric or anuric patients. However, some investigators using very large doses of both of these agents in the experimental management of patients with chronic renal failure report encouraging results in this most difficult group of patients. This use should be reserved as yet, however, for such investigative centers until it becomes clear that the initial results are confirmed by long-term critical appraisal.

Law-Medicine Comment

(Continued from page 489)

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7. *People v. Sorensen,* 66 Cal. Reptr. 7, 437 P2d 495 (1968).
8. *Orford v. Orford,* 49 Ont. L. R. 15, 58 D.L.R. 251 (1921).
9. *Hoch v. Hoch,* unreported case (Circuit Court of Cook County, Ill., 1945), *Time,* Feb. 26, 1945, p. 58; *Chicago Sun,* Feb. 10, 1945.

PHS Publication

(Continued from page 486)

and services, such as financial assistance, for the prospective surgical patient, are presented in the fully-illustrated "Cardiovascular Surgery."

Single copies may be obtained, free of charge, from the Heart Information Center, National Heart Institute, National Institutes of Health, Bethesda, Maryland 20014.

Quantity copies may be purchased at 45¢ per copy, $33.50 per 100, from Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

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Cancer Page

Perfusion Pump Available

The American Cancer Society, Kansas Division, owns a portable Arterial Infusion Pressure Pump for chemotherapy, Model #40-2 Sigma Motor.

This pump is available on loan to any physician in the state.

Hawaiian Meeting

The Pacific Cancer Conference sponsored by the American Cancer Society, Hawaiian Division, will be held in Honolulu, December 9 through 12, 1968. Details may be obtained from American Cancer Society, Hawaiian Division, 230 N. Michigan Avenue, Chicago, Illinois, 60601.

Chemotherapy Seminars

Your committee on Control of Cancer, in cooperation with the University of Kansas Department of Postgraduate Medical Education, has been awarded a pilot grant under the Regional Medical Program for two, one-day seminars in Cancer Chemotherapy. These will be held in late January 1969. Details will be announced later. Enrollment will be limited for these pilot meetings. If they are adjudged successful it is hoped such seminars can be conducted on a continuing basis at several centers over the state.

—The Committee on Control of Cancer

The President's Message

DEAR DOCTOR:

Have we physicians been influential in bettering the patterns of patient care since 1900? Yes and no. As Doctor Dwight L. Wilbur, the President of the American Medical Association, has stated—there have been three major medical revolutions in this century. The *first* was the survey of medical schools in 1908 initiated *entirely* by the American Medical Association resulting in the famous Flexner report which revolutionized medical education by eliminating diploma mills and substandard schools. The *second* major impact on medical practice has been the tremendous advance in medical research, knowledge and technology since 1900. The medical profession has contributed much to these advances but we must *share* the credit with other non-medical groups. The *third* major change has been the ever increasing involvement of the government in health care, and in this area the medical profession has remained aloof, expressing disapproval, but abandoning leadership to others!



In 1968 medical care which was formerly a simple patient-physician relationship has become a matter of total public concern. Good health is now considered by most people in governmental circles and by many others to be a basic human *right*.

A study of medical history through the ages clearly shows in repeated lessons that the physician's position in society is never determined by the physician himself but by the society which he serves.

Public opinion will determine future medical care patterns and we physicians must help mold this opinion.

How does the physician whose day to day milieu is an audience of one—his patient—communicate with his loyal following and advise them of the wise course to pursue for their future medical well-being? Does he examine a distraught patient in his office, assure him that his abdominal pain is not serious and in the next breath say, "Now I want to talk to you about medical legislation?" Of course not—his entire attention is focused on that patient's medical problem.

Only recently have I become optimistic that we have a method to successfully enlighten our patients about sane medical planning. I am optimistic because the blueprint I see evolving has been fashioned independently by widely divergent groups and they are all saying the same thing.

Public Law 89-239 establishing regional medical programs stresses the concept of regionalization and *local* health planning groups. Public Law 89-749 outlining comprehensive health planning envisions state health planning councils and *local* health planning groups throughout each state.

In Kansas, the public health and welfare committee of the legislative council in September, 1968, recommended that counties be grouped under a regional structure and even suggested that eleven regions be established in Kansas.

Doctor Dwight L. Wilbur spoke for the American Medical Association in August, 1968, and recommended that local and state medical societies analyze their local situation and cooperate with civic, business, industrial, labor and educational elements in their area to help provide better care in the future.

Our state society had established, before Doctor Wilbur's recommendation, a committee on Future Patient Care in Kansas to research our state-wide medical needs and suggest remedies.

These plans for the first time seem to recognize the logic in specially tooled local decisions based on widely varying unique local situations. Local recommendations now can be realistically channeled upward to the state and national government. How much more sensible this is than the impractical blanket laws and recommendations often devised by unrealistic visionaries which have previously been directed downward from national agencies to the local level.

The local planning groups I know of consist of informed, influential citizens. I have every confidence their recommendations will be clearly heard by our state and national policy makers.

A sincere and informed doctor is listened to with respect by those who know and admire him. In the days to come, physicians on the local level can help shape public opinion and this opinion will determine future medical care patterns.

Sincerely,

J. L. Morgan

President



Editorial COMMENT

The Booz-Allen-Hamilton Report

The much awaited Booz-Allen-Hamilton report to the Kansas Legislative Council on a plan for the development of health resources for the State of Kansas has been received. This three-volume report explores a wide variety of subjects and makes many suggestions for change. Each item in the report will receive careful examination by the appropriate committees of this Society. The Council will be fully aware of whatever legislative action is undertaken regarding subjects contained in the report. There follow a very few of the recommendations of the Booz-Allen-Hamilton report to enable the Society to have immediate information.

The report begins with the premise, "That health is a basic human right along with rights to life, liberty and property." When this assumption is accepted, at least two corollaries become evident:

That every person should have ready access to high quality personal health services.

That every person should live in an environment which is safe from preventable hazard and conducive to healthful and productive living.

Many obstacles stand between the individual and the care he needs and has a right to receive—shortages in manpower and facilities, unequal distribution of resources, economics, inadequacies in the quality of service, and others. There are many gaps in the state's health protection system. Diseases which could be eradicated are still taking their annual toll. Pollutants that could be removed are still causing illness.

Responsibility for the various functions required to remedy these shortcomings is widely dispersed. However, recent trends have dictated a clear mandate that all government—local, state, and national—has a fundamental responsibility for ensuring that the people's expectations to receive health care are fulfilled to the greatest possible extent.

This should not mean that government agencies will do all things for all people. Nor should it imply that government must be the directive force in all health enterprises—quite the contrary. The pluralistic base of the Kansas health endeavor brings several benefits. Many aspects of the state's total health mission can best be initiated, performed, or directed by nongovernmental institutions or systems. However, in health, as in many other spheres of activity, government—which is ultimately accountable and responsible to the public—has an obligation to ensure that the public's needs are met.

This assurance can be achieved only through an effective partnership, not only between the federal government and its state and local counterparts, but among all health resources, public and private, individual and institutional. In this partnership, efforts must be directed toward common objectives, rather than toward separate objectives, separately established.

Specific recommendations include—

—the reduction of the State Board of Health to five members, with not more than two representing professional health personnel.

—the strengthening of area-wide public health departments to cover the entire state.

—the creation of a healing arts board under which each segment of the health professions will license its own members.

—the licensing or certification, and more effective use of, paramedical personnel.

—the creation of a second medical school in Kansas.

—plan an over-all health system based on the regional concept.

—eventually place all responsibilities for the expanded health services under a single health agency.

IMPORTANT FILM FOR DOCTORS

Dr. A. Earl Walker, Neurosurgeon-in-charge, Johns Hopkins Hospital, has produced a 29 minute film, "The Emergency Treatment of Head Injuries."

The purpose of the film is to assist the first aid man, rescue squad or policeman on how to treat this all too frequent injury at the scene of the accident. About half of the picture is designed to assist the staff of local community hospitals in diagnostic and surgical procedures.

Both on-the-scene and hospital procedures are included in the firm to help the first aid man understand why he has to follow certain procedures and to refresh the local doctor in diagnosis and treatment.

The U. S. Public Health Service recognized the need for this film since the most frequent incidence of head injuries results from traffic accidents; often occurring far from a major medical facility.

Every doctor and professional first aid man should see this film. It is available on a rental or purchase basis. Prints are distributed by Milner-Fenwick, Inc., Baltimore, Maryland 21215.

U. S. COMMUNITIES CHALLENGED TO FIND DIABETICS

A public health leader challenged community and medical leaders to find America's "1.6-million undiagnosed diabetics."

The challenge comes from Dr. Glen McDonald, Chief of the Diabetes and Arthritis Control Program of the U. S. Public Health Service. It appears as a signed page-one editorial in the first issue of the new *Disease Detection Newsletter* published here.

American communities, Dr. McDonald writes, "are failing to uncover 'hidden' cases as quickly as we had hoped."

Last year, according to him, only 7,700 new diabetics were discovered out of 800,000 Americans who took blood-sugar tests. The reason for the low yield, in Dr. McDonald's view, is that the tests were given too often to everyone who came to be tested. Rather, he said, blood-sugar tests should be taken by the high-risk people in America—those most likely to develop diabetes. These, on the basis of past studies, he said, "are those who are over 40, overweight, or related to a diabetic."

He said "There is not a screening program in the U. S. that couldn't double its yield of new cases with very little additional effort or expense.

"This means increased community support and participation in on-going diabetes detection programs. The best such programs are those that are organized as joint efforts of local health departments, medical societies, and diabetes associations."

After all, writes Dr. McDonald, "The first step in fighting diabetes is finding the diabetic."

The *Disease Detection Newsletter* is published bimonthly by the Disease Detection Information Bureau. In a statement of purpose its editors declare "Its purpose is to communicate facts and ideas about disease detection, with special emphasis on diabetes detection. DDib was founded on April 1, 1968, as a public-service information source for disease-detection programs. Ultimately, DDib will provide information on a wide spectrum of diseases and conditions which can be discovered by medically-approved screening programs."

A key concept which will be reported on in each issue is the WHY WAIT? diabetes detection programs. WHY WAIT? diabetes detection programs are being conducted all year around in the state of Delaware, and the communities of Peoria and Dixon, Illinois; Jacksonville, Florida; and Long Beach, California. A dozen more communities are expected to start WHY WAIT? programs in the next few months.

The slogan stands for: "Why Wait for the symptoms or complications of diabetes to strike? Get tested now."

Communities which can qualify receive complete kits of instructions and sample materials explaining how to organize and run programs to screen their hidden diabetics from among the high-risk populations.

More information or copies of the *Newsletter* can be obtained by writing to the Disease Detection Information Bureau, 3553 W. Peterson Avenue, Chicago, Illinois 60645, or by calling Area Code 312, 267-7184.

DDib, the *Disease Detection Newsletter,* and the WHY WAIT? program are all supported by Ames Company, Division Miles Laboratories, Inc., Elkhart. Indiana.

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Book REVIEWS

DIAGNOSTIC PROCEDURES IN GASTROENTEROLOGY, edited by Charles H. Brown, C. V. Mosby Co., St. Louis, 1967. 438 pages, illustrated. $19.75.

This volume, which is a collection of contributions by some 21 authors who apparently have been assigned specific tasks, is actually an expansion of a household handbook of the Cleveland Clinic Department of Gastroenterology. It is a mixture of technical instructions, nurses notes, and illustrated directions as to the performance of various gastrointestinal diagnostic procedures, along with very sketchy comments on interpretation. There is a general section discussing the diagnostic approach to patients with gastrointestinal complaints and sections on various portions of the G.I. tract and difficulties associated therewith. Finally there is a rather extensive section of instructions for patients covering everything from constipation to care of an ileostomy and a list of diet recommendations for most every imaginable condition.

The material presented is obviously adequate and quite excellent for the purpose that it was originally intended. Admittedly the bulk of this book is a printing of a body of material used less formally and presumably mimeographed in the instruction of residents and other house officers at the Cleveland Clinic. A great many of the procedures described are somewhat esoteric or at least of little practical value to the physician in general practice. Although it might on occasion be handy for specific reference this is not a textbook as such, is rather chopped up and incoherent, and would probably not be worth the $20 price tag for most physicians. The printing and layout are good, illustrations helpful. The production of the book is quite satisfactory and the physician who does a good deal of gastroenterology might find it a worthwhile investment.—*J.E.S.*

PRINCIPLES OF NUCLEAR MEDICINE, edited by Henry Wagner, Jr., W. B. Saunders Company, Philadelphia, 1968. 896 pages, illustrated. $27.50.

This textbook consists of 896 pages with contributions from 35 authors.

The book gives adequate history in development of medical isotope techniques to make it interesting to read. Pathophysiology of certain diseases are individually discussed. Some of the material may be useful only to biophysicists.

There are excellent discussions of the physiological principles of nuclear medicine to make the reader quite knowledgeable if he is a student or practicing physician. The chapter on the thyroid gland, for example, is extremely interesting since it discusses early research and treatment of thyroid disorders, and brings the reader up-to-date on diagnostic procedures and treatment methods.

Organ scanning is well covered with fairly good illustrations. Radioisotope therapy is briefly discussed in some chapters probably in direct proportion to the amount of use of the isotope.

The book will never be completely outdated since it has chapters dealing with the subjects of mathematics and basic physics of nuclear medicine.

The appendix is useful for general information such as radiation dose for certain types of x-ray or radioisotope examinations. There is a table of fundamental physical constances such as a roentgen unit or curie.

I would recommend this text for all doctors of internal medicine and certainly for those who specialize in the diagnosis and treatment of disease with the use of isotopes.—*D.M.M.*



Along The BOOKSHELF

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RECENT ACQUISITIONS

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KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in July, 1968 and 1967

Diseases	July 1968	July 1967	July 5-Year Median 1964-1968	January-July Inclusive 1968	January-July Inclusive 1967	January-July Inclusive 5-Year Median 1964-1968
Amebiasis	—	5	1	5	11	6
Aseptic meningitis	4	1	1	4	1	2
Brucellosis	—	—	—	2	—	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	2	1	5	5	5
Encephalitis, post-infect.	2	1	*	8	2	*
Gonorrhea	401	402	337	2,279	2,309	1,868
Hepatitis, infectious	37	20	20	242	111	242
Measles (Rubeola)	—	*	*	8	*	*
Meningococcal meningitis	5	—	1	21	7	10
Mumps	3	*	*	704	*	*
Pertussis	3	2	3	3	5	11
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	1	—	—	3	2	2
Rubella (German Measles)	2	*	*	115	*	*
Salmonellosis	53	26	26	151	121	121
Scarlet fever	1	—	—	27	52	59
Shigellosis	11	4	7	40	22	41
Streptococcal infections	70	95	94	1,609	1,703	1,609
Syphilis	112	104	82	659	680	659
Tinea capitis	1	11	11	30	41	37
Tuberculosis	17	13	22	130	145	145
Tularemia	—	1	—	1	10	2
Typhoid fever	—	—	—	1	1	1

*Statistics not available.

SURVEILLANCE REPORT—ENCEPHALITIS

Surveillance for arthropod-borne encephalitis, conducted by the K.S.D.H. Epidemiology Program, has produced the following information through August 1968:

(1) Mosquito trapping and identification conducted throughout the State indicate that *Culex tarsalis,* the mosquito considered to be most significant in Kansas as a vector of arthropod-borne encephalitis, is abundantly present in the northwestern portion of the State.

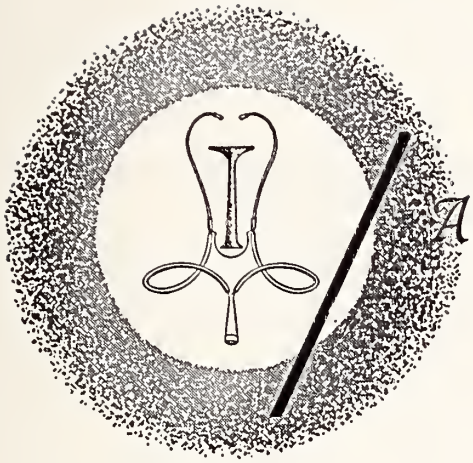
(2) Sentinel flocks of sero-negative chicks have been maintained in Belleville, Great Bend, Scott City, and Colby, and have been bled approximately weekly. Laboratory examination of bloods taken from the Colby flocks during the second week of July indicates that over 90 per cent of these birds have developed antibodies for Western Equine Encephalitis (WEE). Bloods from the Scott City flock indicate approximately 50 per cent infection with WEE. The Belleville and Great Bend flocks have remained sero-negative for WEE. Antibodies for St. Louis Encephalitis have developed in approximately 15 per cent of the Colby flock.

(3) The virus of WEE has been isolated from pools of live mosquitoes trapped in the northwest portion of the State during the third week of July.

(4) Veterinarians throughout the State have reported 34 equine cases of arthropod-borne encephalitis. The first case report was received during the week of June 15. Reports of horse cases have averaged approximately three per week since the initial report.

Two suspect human cases have been reported and are pending diagnosis. As indicated in the April 1968 issue of *Kansas Morbidity Incidence* physician reports of suspect cases of primary arthropod-borne encephalitis are vital to the control of this disease.

(Continued on page 510)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

NOVEMBER

Nov. 8-9 — *Total Care of the Hemophiliac Patient* —symposium sponsored by the Clinical Department, University of Oklahoma Medical School and State Chapters of the National Hemophilia Foundation in the Southwest Region. The symposium will be held at the University of Oklahoma Medical Center, Oklahoma City.

Nov. 11-15 — 96th annual meeting, American Public Health Association, Cobo Hall, Detroit.

Nov. 13-16 — 47th annual convention, National Easter Seal Society of Crippled Children and Adults, Sheraton-Boston Hotel, Boston, Massachusetts.

Nov. 20-21 — Annual conference, National Society for the *Prevention* of Blindness, Roosevelt Hotel, New York City.

DECEMBER

Dec. 1 — 10th national conference on the Medical Aspects of Sports, AMA Committee on the Medical Aspects of Sports, Miami Beach. Write: Committee on the Medical Aspects of Sports, American Medical Association, 535 N. Dearborn, Chicago 60610.

Dec. 4-6 — Refresher course in Ophthalmology and Otolaryngology, presented by the Kansas City Society of Ophthalmology and Otolaryngology, Plaza Inn Motel, Kansas City, Missouri. Write: Samuel Kantor, M.D., Suite 428, Rockhill Medical Building, 6700 Troost, Kansas City, Missouri 64131.

Dec. 6 — American College of Physicians (Texas Regional), Dallas. Write: Ralph R. Tompsett, M.D., 3500 Gaston Ave., Dallas.

POSTGRADUATE EDUCATION

Nov. 11-14 — ***Internal Medicine***

Nov. 22-23 — ***M.D. Day (Columbia, Mo.)***

Dec. 9-10 — ***Gynecology and Obstetrics***

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

Nov. 13 — *Arthritis Symposium*

Nov. 14-16 — *Musculo-Skeletal Diseases for the General Physician*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

Nov. 8-9 — *Surgery Conference (Lincoln)*

Nov. 15-16 — *Perinatal Cardiac and Respiratory Emergencies (Children's Hospital, Denver)*

Nov. 21-22 — *Central Nervous System as a Mirror of Systemic Disease*

For further information write The Department of Postgraduate Education, University of Nebraska Medical Center, Omaha, Nebraska.

Nov. 7-9 — Today's Hospital Problems: An Interdisciplinary Approach—Leadership course for chiefs of staff, hospital administrators and governing personnel, sponsored by Mound Park Hospital Foundation and University of Florida, Tides Hotel

and Bath Club, Redington Beach, Florida. Write: Postgraduate Medical Education, Mound Park Hospital Foundation, Inc., St. Petersburg, Florida 33701.

The Division of Maternal and Child Health of the University of California School of Public Health at Berkeley announces the following postgraduate programs for pediatricians, obstetricians, and other physicians interested in receiving training in the field of Maternal and Child Health. These programs all lead to the degree of Master of Public Health. Tax-exempt fellowship support is available.

Maternal and Child Health. A 9-month program in planning, organizing, and operating comprehensive health services for mothers and children.

Family Planning. A 9-month academic program providing intensive work in family planning as part of the general graduate preparation of maternal and child health specialists.

School Health. A 9-month academic program providing intensive work in school health as part of the general graduate preparation of maternal and child health specialists.

The Multiple Handicapped and Mentally Retarded Child. A 21-month academic and clinical program in planning, organizing and operating community services for children with multiple handicaps, including mental retardation. This program is primarily for Board-certified or Board-eligible pediatricians, or for physicians on the staff of institutions for the mentally retarded or handicapped children.

Career Development Programs. Three-year academic and residency programs consisting on one year of academic training leading to the degree of Master of Public Health combined with residency training in Pediatrics or Obstetrics-Gynecology. The training emphasizes planning, organization and operation of comprehensive health programs.

Applications are now being accepted for the group entering in July or September, *1969*. For information, write to Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California 94720.

Morbidity Incidence Report

(Continued from page 508)

Physicians are again urged to report all suspect encephalitis cases, subject to correction of report following laboratory confirmation. Specimens from suspect cases of human viral encephalitis are requested as follows:

(1) *Acute serum*—(minimum of 5 cc. separated from cells) aseptically collected and mailed to the State Health Department Laboratory.

(2) *Convalescent serum*—(minimum of 5 cc. separated from cells) aseptically collected two to three weeks after the acute specimen and mailed to the State Health Department Laboratory.

(3) *Stool specimen*—This specimen is extremely important in differentiating polio, Coxsackie, and ECHO virus infections, and should be acquired in the acute stage, frozen, and packed in dry ice, if possible, in order to keep it frozen until it reaches the laboratory.

RHEUMATIC FEVER PREVENTION PROGRAM

The Kansas Heart Association reminds Kansas physicians of the Association's Secondary Rheumatic Fever Prevention Program available in Kansas through the cooperation of the Kansas Medical Society, Kansas Pharmaceutical Association, and Kansas Department of Health.

Designed to provide low-cost medication for prevention of recurrences of rheumatic fever, it in no way interferes with the physician-patient relationship.

Any Kansas physician may request an application for special prescription blanks from the Kansas Heart Association in Topeka, upon his diagnosis of a case of active rheumatic fever, inactive rheumatic fever or rheumatic heart disease. This application will enable the physician to enroll his patient in the program. After approval of the application by the Kansas Heart Association, the physician and his patient are each notified of the patient's enrollment in the program. Special prescription blanks for the purchase of low-cost medication will then be mailed to the physician.

The physician signs the special prescription and gives it to the patient. The patient then takes the prescription to a participating pharmacy of his choice where he may obtain his medication, unless Bacillin is the recommended medication. In this case the physician handles the medication and gives the shot. Currently costs of the medication for a three months' supply are $1.98 for Penicillin G or Sulfadiazine and $3.47 for Bacillin syringes. The pharmacist can add an additional dollar minimum handling charge for each transaction.

If the patient fails to remain on his recommended prophylactic schedule, the Kansas Heart Association will notify his physician and the patient, and if requested by the physician, will help in returning the patient to the program. When requested by the physician, the Heart Association will also contact the appropriate health nurse to help return the patient to the program.

Currently 448 patients are enrolled in the program and 226 pharmacists are cooperating in Kansas.

Kansas physicians are encouraged to make use of the program for their patients regardless of their patient's income level. For further information or to enroll a patient call or write the Kansas Heart Association Rheumatic Fever Committee, 2941 Fremont Street, Topeka 66605.

KMS Obituaries

ROBERT M. CARR, M.D.

Dr. Robert M. Carr, Junction City physician for 33 years, died on August 28, 1968. He was 61 years old.

Dr. Carr was born in Junction City on July 11, 1907. He received his medical degree from Northwestern University in 1934, and after completing his internship began his medical practice in Junction City. He served in the Navy in World War II and received the Silver Star for heroism. Dr. Carr was active in community affairs, and was a member of a number of civic, professional and fraternal organizations.

He is survived by his wife and three daughters.

RALPH L. ESLICK, M.D.

Dr. Ralph L. Eslick, 52, died suddenly at the home of his parents in Springfield, Missouri, on June 8, 1968.

Dr. Eslick was born in Springfield, Missouri, on May 14, 1916. He was graduated from Northwestern University School of Medicine in 1941. He was a radiologist and since 1966 had been associated with the Snyder Clinic at Winfield.

Surviving him, in addition to his parents, are his wife and four children.

FRANK G. H. MECKFESSEL, M.D.

Dr. Frank Meckfessel, 89, died at the Edwards County Hospital, Kinsley, on August 25, 1968.

Dr. Meckfessel was born on February 21, 1879, in St. Louis, Missouri. He received his medical degree from the Eclectic Medical University in Kansas City in 1903. In 1920, he moved to Lyons, Kansas, and was in medical practice there until his retirement. He had lived in Kinsley since June, 1966. He was a member of the United Methodist Church, and several fraternal organizations.

He is survived by a son and a daughter.

ALBERT W. SCHMIDT, M.D.

Dr. A. W. Schmidt, Lyons, died on July 24, 1968, at the age of 78.

He was born October 1, 1889, at Sumner, Iowa, and graduated from the Loyola School of Medicine, Chicago, in 1916. Dr. Schmidt came from Michigan to Lyons in 1920 and practiced there until his retirement in 1955. He was a member of the United Methodist Church, American Legion and Masonic Lodge.

Dr. Schmidt is survived by his wife and two children.

FLOYD C. TAGGART, M.D.

Dr. Floyd C. Taggart, 66, Topeka, died on September 6, 1968, in a Topeka hospital.

Born in Topeka on May 22, 1902, Dr. Taggart received his Doctor of Medicine degree from the University of Colorado School of Medicine in 1929, and had practiced in Topeka since 1931. He was a major in the medical corps and served in Europe during World War II. He was a member of the Westminster Presbyterian Church, fraternal and professional organizations, and a diplomat of the American Board of Anesthesiologists.

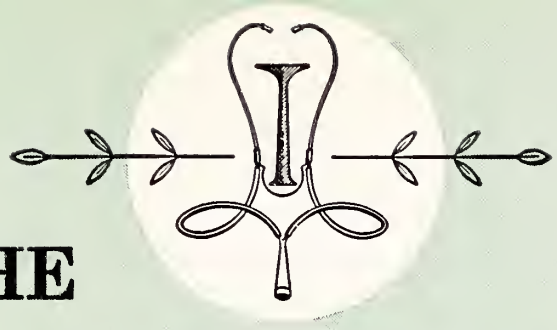
Survivors include his wife and three daughters.

R. W. VanDEVENTER

Dr. R. W. VanDeventer, 80, retired Wellington physician, died on August 1, 1968.

Dr. VanDeventer was born in Bates County, Missouri, on October 12, 1887. He received his medical degree from University Medical College, Kansas City, Missouri, in 1912. He came to Wellington in 1916 from Cheyenne, Wyoming, and Colorado Springs, Colorado. He retired from practice in 1959. Dr. VanDeventer was a veteran of World War I and World War II. He was a member of the First Christian Church, medical and fraternal organizations.

He is survived by his wife and two daughters.



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NOVEMBER
1968

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NO XI

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☐ Frequently NCME makes available published papers related to subjects presented on closed-circuit television.

A recent NCME hospital telecast presented Philip N. Sawyer, M.D., Professor of Surgery and Head of the Vascular Surgical Service at Downstate Medical Center, Brooklyn, N.Y., in a demonstration and evaluation of "Gas Endarterectomy."

In this program, Dr. Sawyer performs the operation on a patient with gross occlusion of the right iliac, femoral and popliteal arteries.

In Dr. Sawyer's view, gas endarterectomy has several advantages over mechanical methods: the operation can be completed faster, causes less damage to the arteries and offers a more successful outcome.

NCME is an independent network supported by Roche Laboratories to increase the use of closed-circuit TV for medical education under direct hospital and school control.

If your hospital or school does not participate in the biweekly NCME program, information on the cost-free service may be obtained by writing to NCME, 342 Madison Avenue New York, N.Y. 10017

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Volume LXIX, Number 11—November, 1968

The JOURNAL of the KANSAS MEDICAL SOCIETY

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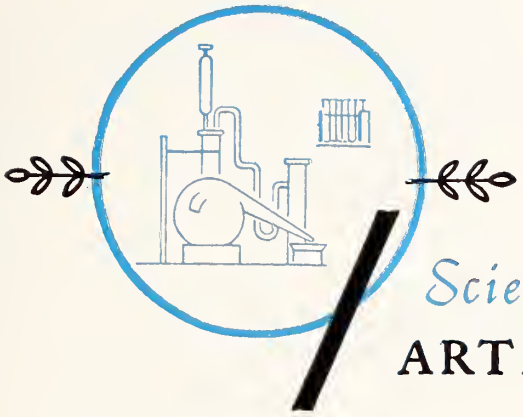
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Scientific
ARTICLES

Bleeding Esophageal Varices—

—*Experiences in a General Hospital*

JEFFREY C. REYNOLDS, M.D., ***Kansas City, Kansas***

AKRON, OHIO, IS A CITY of 300,000 persons, located some 35 miles south of Cleveland, in northeastern Ohio. The area is densely populated and heavily industrialized. Pittsburgh Paint and Glass, Seiberling, General Tire, Firestone, Goodrich, Goodyear, Mohawk, 171 trucking firms, and numerous manufacturing concerns are all located in the vicinity.

Akron is wealthy, with a per family income approaching $9,000 per year. Reflecting this, Akron boasts a large number of excellent restaurants, as well as many night clubs and bars. Like many industrial cities, it is a "week-end town." Most drinking and eating-out occur on Friday and Saturday nights, particularly on pay-day week ends. Heavy alcoholic consumption is common. The city contains two of the three busiest liquor stores in the state of Ohio.

Akron City Hospital, comprising 586 beds and 60 bassinets, is the largest hospital facility in the area. This private, nonprofit community hospital offers internships, residency programs, and a vigorous educational program. Many of the attending physicians hold teaching appointments at Cleveland's Western Reserve University Medical School.

During the 1930's, City Hospital had as many as 50 per cent charity patients. Today, with the advent of Medicare and wide-scope industrial insurance plans, the number is probably under 5 per cent. Many of these come from a nearby depressed area. Most low-income patients receive their health care at another, more centrally-located hospital, however.

During 1966-1967 I served a year's residency in general surgery at Akron City Hospital. During that time, bleeding esophageal varices provided many thorny management problems. I reviewed the hospital records, and uncovered 45 cases of bleeding varices, diagnosed from 1960 through 1965.

These patients all had varices diagnosed by radiologic, endoscopic, or major surgical procedures. No cases with coexistent active peptic ulcer disease or gastritis were included. Upper gastrointestinal series were done in all patients in the study.

The author presents an analysis of the cases of bleeding esophageal varices seen in a 586-bed hospital over a five-year period, and concludes that surgical attack is a more conservative approach than continued nonsurgical support if the patient is considered operable, even though not a good risk.

Identification

All but one patient was Caucasian. There were 32 men and 13 women. Eight men were from 41 to 50 years of age; 16 from 51 to 60; and five from 61 to

Presented at the annual meeting of the Kansas Chapter, American College of Surgeons, October 15, 1967, Hays, Kansas.

70 years old. The women's ages had no specific temporal distribution.

Symptomatology

Hematemesis was the most frequent symptom, mentioned by 32 patients (71%). Twenty-three (51%) had noticed melanotic stools. Twelve patients recalled developing abdominal swelling, and five of these were aware of jaundice. All 12 proved later to have particularly advanced hepatic disease *(Table 1)*.

TABLE 1

SYMPTOMS

Hematemesis	32 (71%)
Melena	23 (51%)
Abdominal swelling	12 (27%)
Jaundice	5 (11%)

Past Medical History

Thirty-two (71%) admitted consuming alcohol excessively for years, and 29 patients (64%) had experienced some form of upper gastrointestinal bleeding previously. Almost all the rest remembered one or more previous episodes of jaundice. Five of these latter patients recalled hepatitis in the past; two had been exposed to hepatotoxic compounds at work *(Table 2)*.

TABLE 2

PAST MEDICAL HISTORY

Excessive alcohol	32 (71%)
Previous bleeding	29 (64%)
Previous jaundice	10 (22%)
Previous hepatitis	5 (11%)
Hepatotoxic exposure	2 (4%)

Physical Examination

Examination showed 30 patients (two-thirds) with a tachycardia over 100 per minute, and 15 (one-third) with a systolic blood pressure below 100. Hepatomegaly was found in 27 (60%), ascites in 20, and icterus in 13.

Five had apparent splenomegaly. It was difficult to examine the ascitic abdomen, however, and probably more than five spleens were enlarged. Twelve patients were confused, due to hypovolemia, liver decompensation, or a combination of the two factors. Twelve patients vomited blood during examination.

TABLE 3

PHYSICAL FINDINGS

Rectal blood	42 (93%)
Hypovolemia	30 (67%)
Tachycardia	30 (67%)
Hypotension	15 (33%)
Hepatomegaly	27 (60%)
Ascites	20 (44%)
Icterus	13 (29%)
Confusion	12 (27%)
Hematemesis	12 (27%)
Splenomegaly	5 (11%)

Examiners discovered guaiac-positive stools in almost all patients *(Table 3)*.

Initial Treatment

Severity of bleeding was not a criterion for selection of initial therapy. The individual patient determined who treated him initially. Each patient was asked if he had a personal physician, or one whom he would like to have care for him. If he indicated a preference, the particular surgeon, internist, or general practitioner was called into the case. The surgeon on service for the evening assumed responsibility for the management of patients who did not specify a particular physician.

Once the individual patient was in the hospital, treatment was influenced by the ready availability of blood. The Red Cross in Summit County has a unique system of blood collection and distribution. Unions and management sponsor blood donation campaigns, and give workers time off to donate. Once blood has been collected and processed, it is then made available, free of charge, in any amount requested. Should fresh blood be desired, the hospitals and the Red Cross maintain lists of persons who will come to the hospital to donate blood whenever called. Newspapers print the names of gallon donors, and print the pictures of those who donate five gallons of blood. With such encouragement, it is not unusual for an individual to give five or six gallons of blood over a 20-year period.

Because of the availability of blood, good nursing care, and 24-hour house staff coverage, the attending physicians at City Hospital generally treated bleeding varices conservatively at first. Initial therapy included bed rest; sedation; restoration of circulating blood volume; nasogastric intubation, and iced saline lavage of gastric contents; gastroesophageal tamponade; periodic recordings of vital signs, intake, and output; and repeated physical examinations of the

patient. Gastric cooling/freezing was used a few times in the 1960's, with only equivocal results.

Laboratory assessments varied widely, according to the personal philosophies of the attending physicians. Some ordered only "the bare minimum" of studies, while others obtained literally dozens of serial laboratory evaluations. If anything, the surgeons were more compulsive than the internists in following their patients' blood chemistries.

Laboratory Findings

About two-thirds of the patients were anemic (under 10 grams hemoglobin and 30 mg per cent hematocrit) upon admission. Prothrombin times, done in 39 cases, were prolonged (below 75 per cent of control) in 32. Blood ammonia, measured in 27 patients, was elevated (above 55 mg) in 20. Deranged serum proteins, elevated bilirubin content, and abnormally high bromsulphalein dye retention were usually seen in the most flagrant instances of cirrhosis. These tests were not ordered consistently enough to allow a meaningful clinical-laboratory correlation, however *(Table 4)*.

TABLE 4

LABORATORY FINDINGS

Anemia	30/45 (67%)
Prothrombin time	32/39 (82%)
Blood ammonia	20/27 (74%)
Serum proteins	15/25 (60%)
Bilirubin	10/22 (45%)
BSP retention	12/20 (60%)

Surgical Consultations

Surgical opinions were given in half the cases. Often the patient's condition was almost hopeless, and surgical consultation was apparently sought only to satisfy the records committee. There were no specific criteria used as to whether a surgical consultation should be obtained on any given patient.

Certain laboratory tests proved useful to the consultants. Albumin over 3 gm per cent, BSP retention under 15 per cent, and total bilirubin under 3 mg per cent were favorable indices. If these standards were met, the patient could be rated a (relatively) good surgical risk. If two of three were attained, he was rated as fairly good. Tests not done were counted as if they had not met the standards.

Only one patient was a "good" risk for surgery, while four were rated fairly good candidates. Eight failed to meet two of the three criteria, and were counted as poor risks. One patient met none of the arbitrary standards, yet had to be operated upon because of persistent hemorrhage. Eight more unequivocally bad risks were deemed unsuitable for operation *(Table 5)*.

TABLE 5

SURGICAL CONSULTATIONS

Consultations	22/45 (49%)
Good risk	1/22 (5%)
Fair risk	4/22 (19%)
Poor risk	8/22 (36%)
Bad risk	12/22 (41%)

Operations

Fourteen came to surgery. One operation was elective, with the patient in optimal condition after intensive medical management. The other thirteen were done as urgent or emergency procedures for control of persistent or recurrent bleeding.

Laparotomies to confirm bleeding sites and allow liver biopsies were done in seven patients. Five of these soon expired. The other two subsequently underwent transthoracic varix ligation, when in improved condition. One survived and one died.

Seven other patients underwent end-to-side portacaval anastomosis as definitive therapy. Portal pressures were mentioned as being elevated in five; specific readings were not mentioned in the operative reports. Two of these seven shunts re-bled postoperatively, leading to transthoracic varix ligation procedures; both continued to bleed, and subsequently died. These two had been noted to have persistently elevated portal pressures after completion of their shunts *(Table 6)*.

TABLE 6

OPERATIONS

Total number of patients	14
Laparotomy	7
Secondary varix ligation	2
Portacaval shunt	7
Secondary varix ligation	2

Survivals

Over-all surgical mortality was 57 per cent—six out of 14 patients survived to leave the hospital.

(Continued on page 523)

Sialography

A Significant Contribution in the Diagnosis and Surgical Management of Salivary Gland Disease

WILLIAM R. ALLEN, M.D., ***Kansas City, Kansas***

FORTY-THREE YEARS AGO Barsony introduced the technic of injecting radiopaque media into the salivary glands for roentgen evaluation. The technic of visualization was, however, unsatisfactory with crude needle technics of the salivary gland duct in an unsedated patient. The ducts were usually over-injected and quite often there was extravasation of medium into the gland itself. The diagnostic value of the procedure remained in question until 1957 when the secretory sialograph technic was popularized by Philip Rubin, M.D. and John F. Holt, M.D., from Ann Arbor, Michigan. It has been this technic or slight modifications of it which has made sialography an important and reliable tool in the management of salivary gland disease.

The technic of the examination requires the following simple equipment:

1. Lacrimal probes.
2. Williams olive-tipped lacrimal probes.
3. Bowman plain-tipped lacrimal probes.
4. A 2 to 5 ml hypodermic syringe.
5. A sterile, ready for use, cut-down catheter (22 guage 8 inch length).
6. 3 cc vials of Pantopaque.
7. Fine pointed forceps or hemostat and a good light (preferably a head lamp).

With the patient in either a sitting or horizontal position and the instruments having been wet-sterilized in Zepharin Chloride solution or aqueous Merthiolate, the salivary gland is catheterized. Stensen's or Wharton's duct is identified and gently dilated with a lacrimal duct probe. The catheter, attached to a 2 cc syringe, is filled with the Pantopaque excluding all air from the system. This filled catheter is inserted into the duct. Occasionally, the tip of the catheter requires beveling by clipping the tip of the catheter at an angle to aid in the threading of the catheter into the duct. The duct is identified, dilated and catheterized with little or no discomfort to the patient. The syringe is taped to the patient's forehead and the patient is placed in position for radiography. The duct is then slowly injected with 0.1 to 0.4 ml of pantopaque. End point of the injection is indicated by the patient at the moment of any definite feeling of fullness or pain. Error of earlier technics was most generally the over-injection of the ductal system. Rarely does a Wharton's or Stensen's duct require more than 0.4 cc. Injection should be made slowly. The catheter is left in place and appropriate radiographs are made. After these have been studied to confirm the adequacy of filling of the ductal system, the catheter is removed and salivation is stimulated by a lemon candy drop or mint. A final post-evacuation film is made.

This series of nine cases demonstrates the value of sialography in giving a more clear-cut clinical diagnosis prior to surgery and in some cases aiding in the selection of those patients who would benefit from surgical treatment. Visualization of intrinsic tumors in relationship to the ductal pattern has at times proved beneficial in planning surgical removal. The simple and reliable technic which allows an unhurried and careful roentgen examination of the gland has made present-day sialography a desirable tool not to be overlooked by the careful practicing physician.

Ideally, the injected gland shows filled intercalary ducts and minimal delineation of the acini. The closed system of this examination allows unhurried roentgen technic with the patient in several positions. Emptying phase of the examination allows the identification of functional competency of the acini and ducts of the salivary gland which aids in the identification of small areas of ductal obstruction, early inflammatory disease, and suggestive evidence differentiating the type of tumor which may involve the salivary glands.

Radiographs made for examination of the parotid gland are lateral projections and anteroposterior projection with the patient's head slightly rotated to the affected side. This rotation in the AP projection allows the gland to be best seen without superimposition of the ramus and body of the mandible. A pre-

liminary radiographic examination is always made for delineation of ductal stone or glandular calcifications. The series is repeated after filling. The emptying phase film is usually a lateral projection of the gland in question.

For the submaxillary gland, the lateral mandible position together with an anteroposterior view of the submaxillary gland are usually sufficient. Occasionally an intraoral film of Wharton's duct is desirable. Here again the preliminary, filled and post-emptying phases are recorded.

Radiographic findings are best reported under the following classification of Rubin and Holt.

1. Normal
2. Inflammatory
   - A. Chronic Obstructive Sialodochiectases
     1. Calculi
     2. Strictures
   - B. Chronic Non-obstructive Sialectasis
     1. Recurrent sialdenitis in children
     2. Recurrent pyogenic parotitis
     3. Sjögren's syndrome
     4. Mikulicz's disease
3. Tumors
   - A. Extrinsic
   - B. Intrinsic
     1. Encapsulated, cellular
     2. Encapsulated, cystic
     3. Invasive

The sialogram usually makes a clear delineation between the inflammatory disease and tumor. Acute inflammatory processes of the salivary glands rarely require roentgen examination; in fact, such evaluation is usually avoided since the injection of the acutely inflamed ductal system may aggravate the inflammation. Chronically inflamed glands are caused by either an obstructing pathology of the ductal system or a non-obstructing inflammatory swelling of the gland. Under the classification of obstructing sialodochiectasis will be found calculi of the duct and strictures. Non-obstructing pathologic processes are the result of either a chronic dilatation of the peripheral ductal system of the gland (sialectasis) or lymph node chronic inflammatory swelling or tumor which displaces the gland and produces an apparent swelling of the parotid. This group of non-obstructing diseases is categorized under the heading of Mikulicz's syndrome and may have as their cause a lymphoblastoma, sarcoidosis, tuberculosis, leukemia, syphillis and gout. The sialogram clearly differentiates the non-obstruction sialodochiectases or sialectasis from the group of entities resulting in Mikulicz's syndrome.

The second large category of disease processes to be considered is that of neoplastic origin. The sialogram demonstrates which tumors are extrinsic and which are intrinsic to the salivary gland. It also gives suggestive help in identifying which are intrinsic encapsulated cellular tumors, which are encapsulated inflammatory cysts and which are intrinsic invasive tumors. It should be emphasized that the sialogram interpretation should be restricted to delineation of which tumor is intrinsic within the salivary gland or extrinsic, displacing the salivary gland; and whether the tumor is encapsulated or invasive, and not whether the tumor is benign or malignant. This terminology should not be construed to be synonymous.

An extrinsic tumor displaces the ductal systems and the post-evacuation film, after stimulation of salivation, shows complete clearing of the duct by the opaque medium. An intrinsic solid tumor shows again the ductal system to be displaced but small fragments of the slightly dilated secondary radicles remain filled with the opaque medium when the gland is stimulated to evacuate. Intrinsic encapsulated inflammatory cyst smoothly displaces the ductal system as would be expected with a sphere and shows only an occasional slight trace of the opaque medium in the secondary radicles after stimulation to evacuation. Intrinsic and invasive tumor shows extravasation of the opaque medium into the tumor on the filled phase and retention of the opaque medium within the tumor on the post-evacuation phase. When an intrinsic and encapsulated inflammatory cyst is suggested by the sialogram, direct needling of the area, evacuation of the cyst and opacification with a water soluble opaque medium such as Hypaque will offer radiographic confirmation.

Case Reports

Clinical material here presented is meant to illustrate each of the categories of pathology determined by the sialogram.

Case A *(Figures 1 and 2)*

A 55-year-old white male had a history of recurrent submaxillary glandular swelling which was at times tender and was more persistent in recent weeks and months. Survey films failed to show evidence of a calculus. Sialographic visualization of the right submaxillary gland showed sialodochiectasis with dilatation of the primary duct and obliteration of the terminal radicles with dilatation of the primary radicles. Comparative visualization of the opposite side shows a normal ductal system on the left with first, second and third degree interlobar ducts and fourth degree intercalary ducts. A slight dilatation of the primary duct is shown. The obstruction of the primary duct on the right side becomes apparent when the two are compared.

In this instance the sialogram resulted in evacuation of a moderate amount of non-opaque material of

CASE A

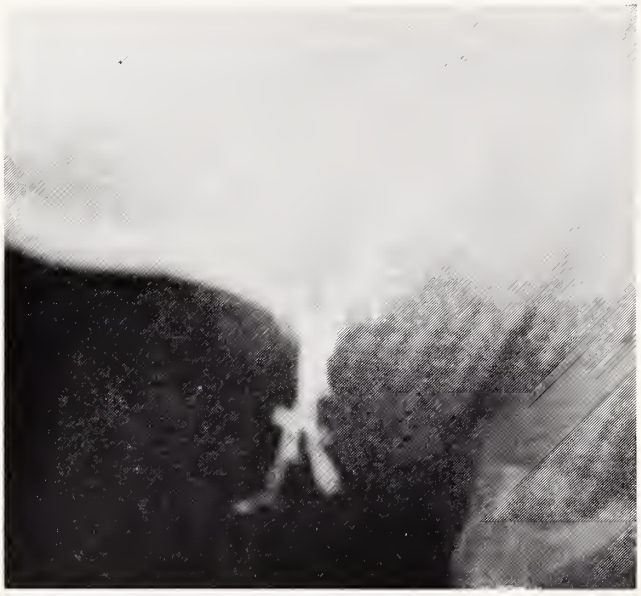


Figure 1. Sialodochiectasis right submaxillary gland.

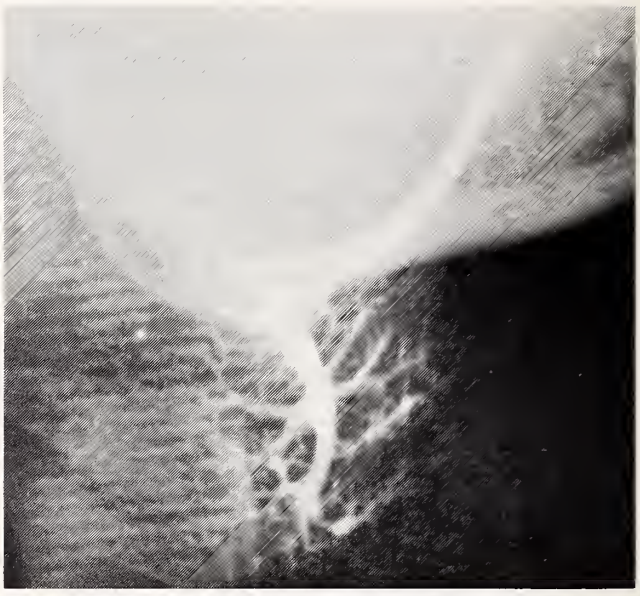


Figure 2. Normal left submaxillary gland.

toothpaste consistency from the right duct within a 24-hour period. Subsequent daily massages of the gland by the patient have maintained a clear flow from the right gland without recurrence of the swelling. Such a happy consequence of sialography is not to be anticipated as routine.

CASE B

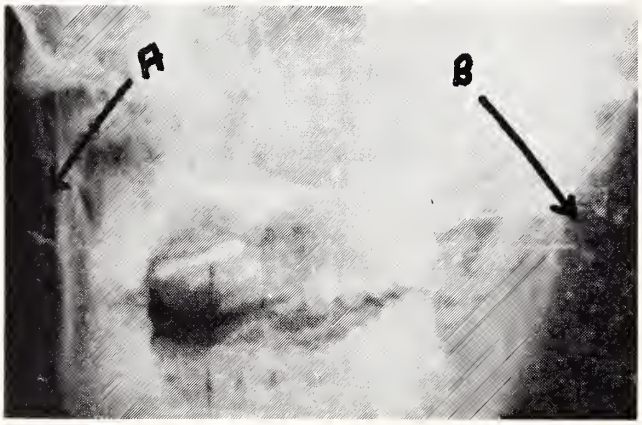


Figure 3. (A) pointer shows normal right parotid gland (B) pointer shows retained media in the acini of parotid gland on the left.

CASE B *(Figures 3 and 4)*

This is a 13-year-old child with a history of recurrent infection of the left parotid over several years duration. Sialogram of the left parotid shows the "mulberry" pattern of dilation of the acini in the earlier stages of sialectasis. Visualization of the right parotid ductal system shows a normal ductal system with absence of the dilated acini and the presence of fourth degree intercalary ducts. Post-stimulation appearance of the left gland was clearly shown at the time the right gland was visualized with retention of the opaque medium in the acini. The sialogram in this case confirms the clinical diagnosis of recurrent sialadenitis in the child.



Figure 4. "Mulberry" pattern of sialiectasis.

CASE C



Figure 5. Chronic non-obstructing sialiectasis right parotid, showing dilated ductal system and obliterated terminal radicles.



Figure 6. Left parotid dilated and blunted, ductal system showing advanced "mulberry" pattern. Chronic non-obstructing sialiectasis.

CASE C *(Figures 5 and 6)*

The patient is a 49-year-old white female with a history of having visited a number of physicians because of persistent and recurring bilateral parotid swellings over a period of several years. Therapy had been ineffectual. The absence of a clear diagnostic explanation of the patient's condition resulted in a "doctor hopping" experience and significant patient anxiety. The bilateral sialograms of the parotid gland show an advanced chronic non-obstructing sialiectasis as would be expected with Sjögren's syndrome—sicca syndrome. With a clear-cut explanation of the pathology present, the patient now accepts the condition and has shown symptomatic improvement with medical management. The value of the sialogram, in this case, to establish with certainty the pathology present was of great value.

CASE D *(Figures 7 and 8)*

A 51-year-old white male presented himself with an enlargement in the region of his parotid gland which had been persistent and slowly increasing in size over a period of approximately one month. Sialography showed the point of maximum swelling to be slightly below the ductal system of the parotid and displacing the lower tail of the parotid gland slightly cephalad. It was concluded that the tumor was solid and extrinsic from the parotid. Scrutiny of the patient's mouth and pharynx showed a small primary carcinoma of the tonsillar fossa which was subsequently confirmed by biopsy.

CASE E *(Figures 9 and 10)*

The patient was a 60-year-old white male with a large tumor of his mandible and several tumors over his calvarium. Sialogram showed the parotid to be extrinsic from the large tumor destroying the mandible. Biopsy proved this tumor to be anaplastic carcinoma, the point of origin of which has not been identified.

CASE F *(Figures 11 and 12)*

A middle-aged white female had an enlargement of the parotid gland which had been present for several weeks and had been at times somewhat tender but was non-tender at the time of the sialogram. Sialograms showed a distortion and spreading of the inferior secondary duct from the remaining portion of the ductal system. There was some stretching of this duct. The general configuration was that of a capsulated solid tumor. The smooth contour of the displacement was considered suggestive of an encapsulated intrinsic cyst. A needle was inserted into the tumor by the referring physician and clear, slightly tinted fluid removed. The cyst did not recur.

CASE G *(Figures 13 and 14)*

An elderly patient presented himself at the hospital because of cerebral arteriosclerosis among his pathological entities. There was noted enlargement of his left parotid gland and the sialogram of the affected parotid showed a normal primary ductal system with areas of diffusion of the contrast medium into the glandular parenchyma. Opaque medium in the post-

CASE D



Figure 7. Anteroposterior view of parotid. Arrow at palpable mass displacing the normal gland.

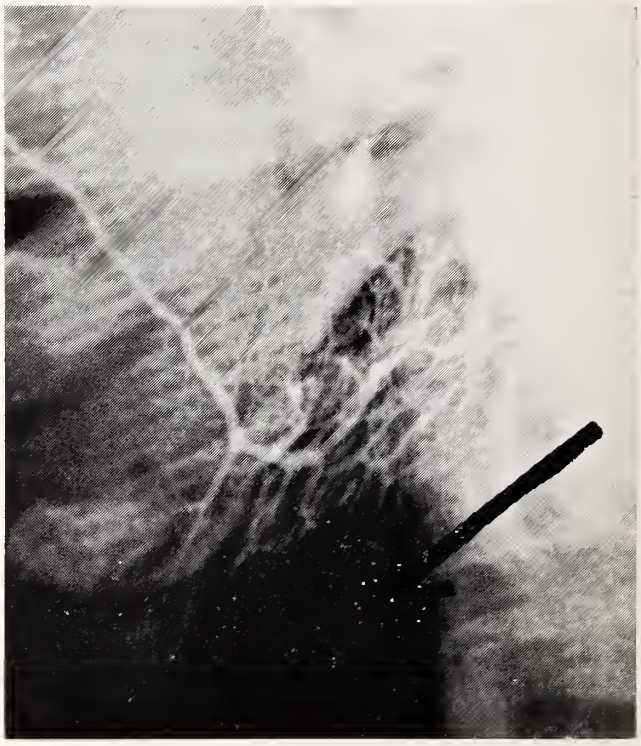


Figure 8. Lateral projection shows normal pattern and position of mass below parotid gland indicated by arrow.

CASE E

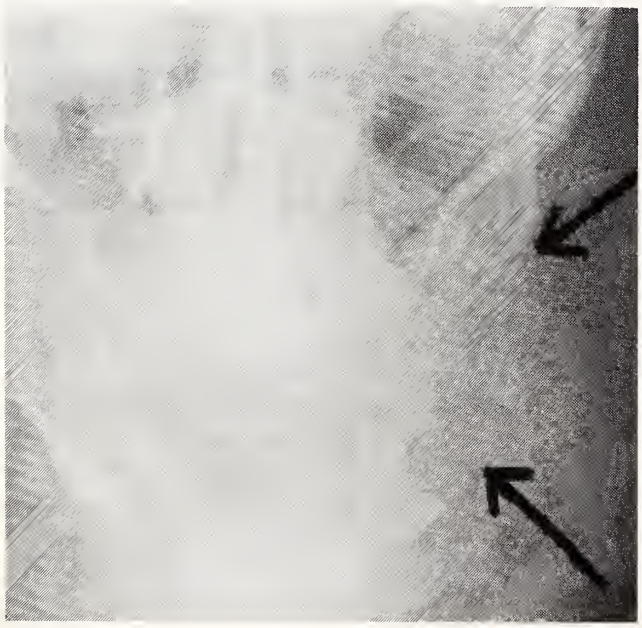


Figure 9. Arrow indicates large tumor mass with bony destruction shown.

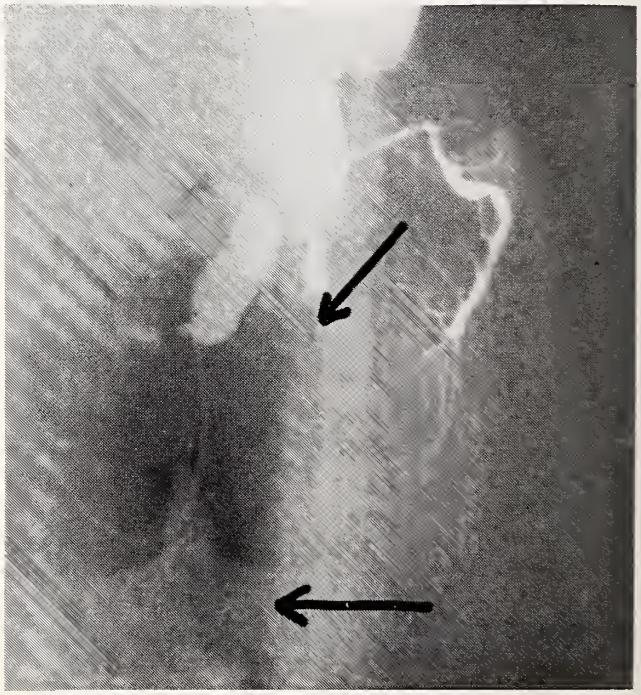
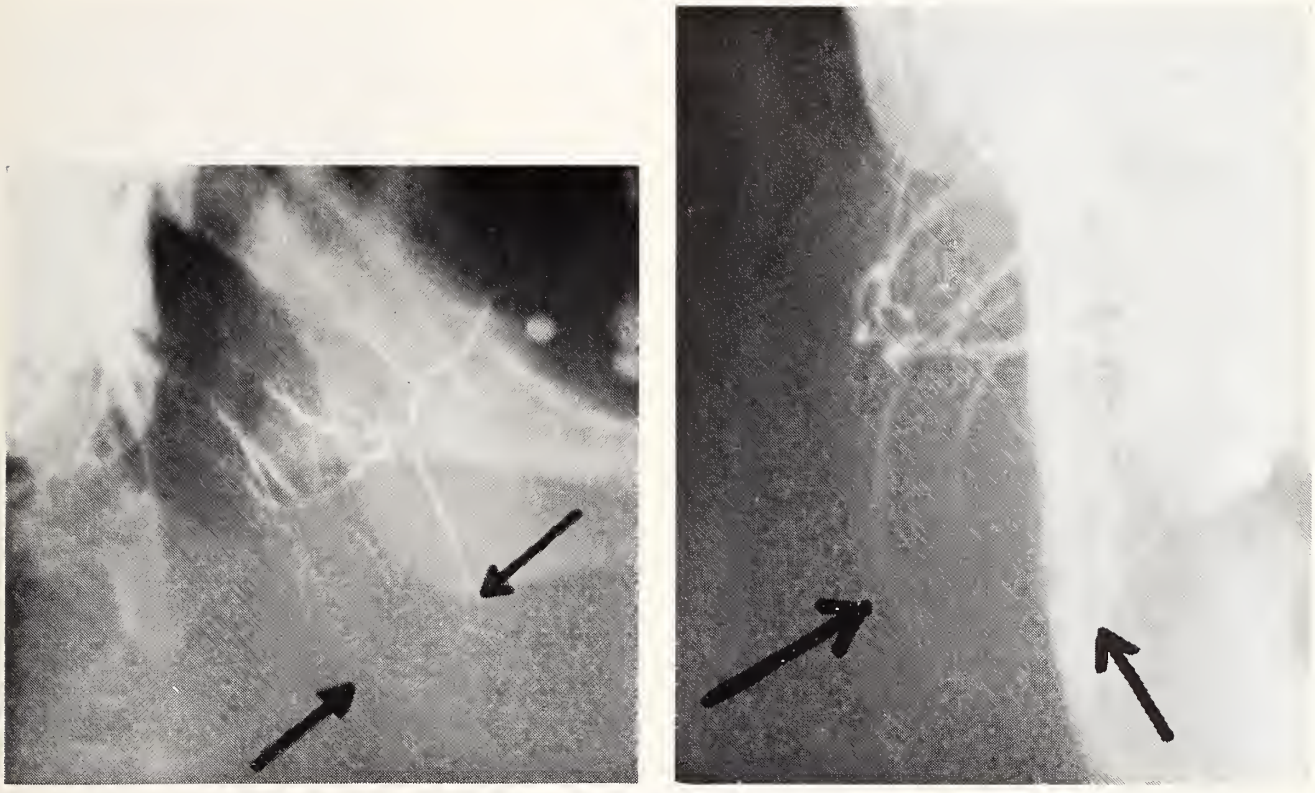


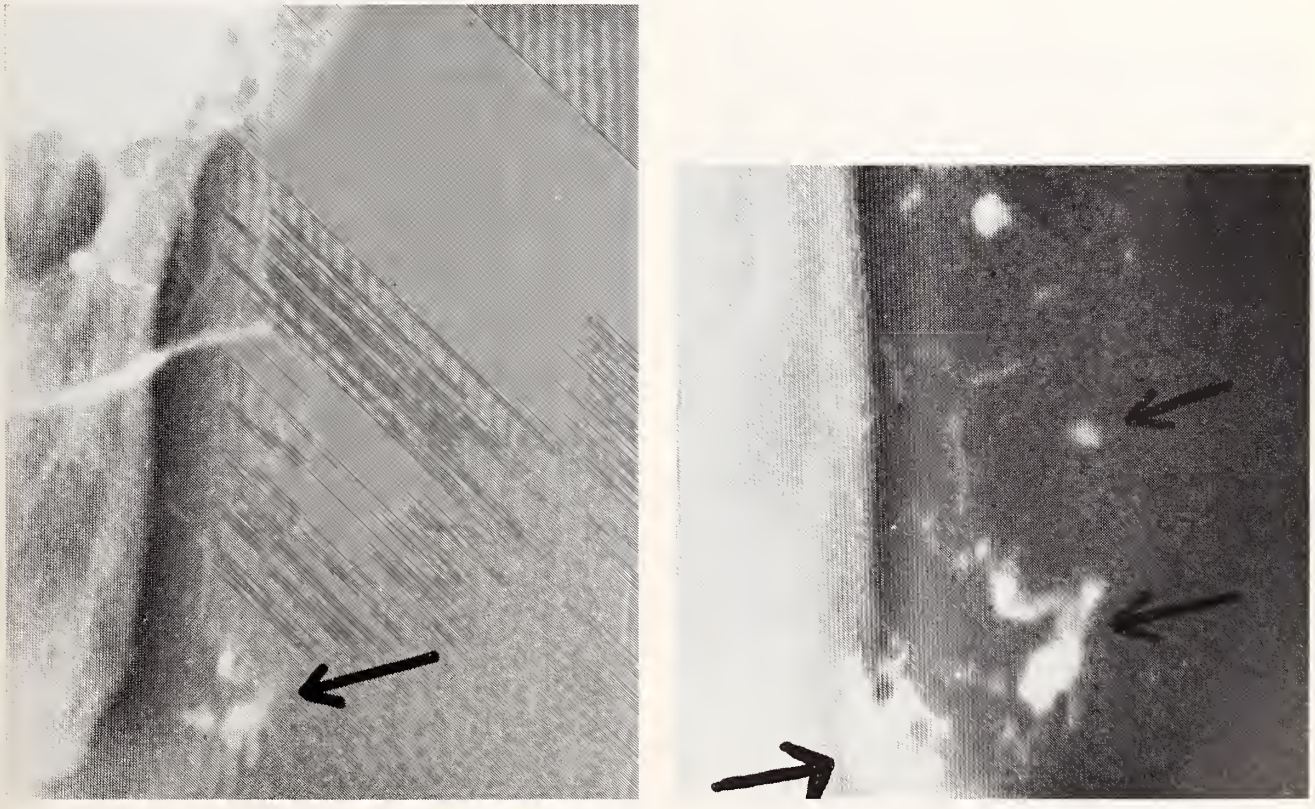
Figure 10. Arrow indicates active bone lysis of mandible and displaced normal parotid ducts.

CASE F



Figures 11 and 12. Arrows mark spreading and stretching of inferior secondary duct. Intrinsic cyst.

CASE G



Figures 13 and 14. Arrows mark bizarre puddling and pooling of contrast medium showing extravasation into the gland parenchyma. Intrinsic invasive tumor.

CASE H



Figures 15 and 16. Arrows mark displacement of ducts by intrinsic solid tumor.

CASE I



Figure 17. Arrow marks soft tissue mass which is displacing the normal submaxillary ducts posteriorly.



Figure 18. Normal ductal pattern of submaxillary gland.

evacuation film is retained in the parenchyma with clearing of the primary ductal system. This bizarre puddling and pooling of contrast medium is that typically seen with an invasive intrinsic tumor of the parotid. Pathology in this case proved to be malignant infiltrating tumor of the parotid.

CASE H *(Figures 15 and 16)*

A white female patient, age 50, had an enlargement of the parotid gland of six weeks duration. Sialogram showed displacement of the ductal system with spreading of the secondary ducts. There was a very minute amount of retained contrast medium in the post-evacuation film as the only evidence of intrinsic and encapsulated solid tumor. The roentgen diagnosis was that of extrinsic displacing tumor versus an intrinsic solid and encapsulated tumor of the parotid. The pathology in this case proved to be an intrinsic mixed cell tumor of the parotid. The findings here emphasize the fact that sialography does not attempt cytological classification. The value of the examination in this case was clear visualization of the relationship of the tumor to the ductal system of the gland which aided in surgical excision of the tumor.

CASE I *(Figures 17 and 18)*

A six-year-old white male had a submandibular enlargement which had changed from time to time in size and had been present for a period of four weeks. The mass did not seem to change in size with eating. The mass was somewhat red and tender. Sialogram of the submaxillary gland showed clear visualization of the ductal system and displacement of the submaxillary gland posteriorly by the soft tissue mass. The extrinsic character of the mass, together with its relationship to the submaxillary gland and other soft tissues of the neck, was helpful in establishing the clinical diagnosis of an infected branchial cleft cyst or inflamed lymph node with associated cellulitis. The patient was treated conservatively with antibiotics and no surgery. The fluctuant tumor disappeared and has not returned.

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Bleeding Esophageal Varices

(Continued from page 515)

However, of those 14, one might realistically eliminate from consideration the seven who underwent laparotomy. This was not definitive treatment. The varix ligations done twice in this group were only desperate, stop-gap measures. Patients undergoing shunts, definitive therapy in other words, did much better. Here the survival rate was 71 per cent.

In contrast, 68 per cent (21 out of 31) medically-managed patients died. Of these, a large number exsanguinated rapidly or were such poor risks that surgery was precluded *(Table 7)*.

TABLE 7

SURVIVALS

Surgical	6/14	(43%)
Laparotomy, with or without varix ligations	1/7	(14%)
Shunts overall	5/7	(71%)
Shunts without ligations (2°)	5/5	(100%)
Shunts with secondary ligations	0/2	(0%)
Medical	10/31	(32%)

In light of the findings presented, the superiority of surgical treatment of the actively bleeding esophageal varices patient is apparent. This exceptionally morbid disease deserves the most vigorous therapy possible.

Only ten of 31 patients treated conservatively lived to leave the hospital. In this instance, "conservative" management seems radical, whereas surgical decompression of the portal bed is the safer, more expeditious method of treatment.

Blood transfusions, no matter how readily available, should not serve as an excuse for surgical procrastination. It makes little sense to give eight or ten units of blood, waiting for arbitrary laboratory values to be established, while a patient continues to bleed. The bleeding varices patient has only marginal physical reserves. They should not be depleted further by prolonged, poorly controlled bleeding.

Earlier operations on relatively healthier patients should improve survival rates. More patients should be considered for surgical intervention, for a definitive attack is certainly preferable to a holding action.

Thanks is given to Dr. Charles Fox, Akron, Ohio, for suggesting the study, and to Dr. Don Miller, University of Kansas Medical Center, for many helpful editorial suggestions.

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Move Over, Please

The Population Explosion: Dimensions of the Problem

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The Problem

TECHNOLOGY AND SCIENCE have enabled man to control more of his environment each year. One example of this is the sterilization of rats as a mode of disease control.† If a man is to maximize free choice about the world in which he lives, it is increasingly urgent that he carefully estimate the potential effects of future technological developments. Urgent decisions are required on many humanitarian issues related to future health planning: automation, urbanization, the four day work week, the newly emerging work ethic, the threat of leisure, air pollution, water pollution, sources of energy, comprehensive medical care systems, the arms race, and national and international politics. The population crisis is one of the more complex and urgent of these problems. If present trends continue, a population cataclysm may occur in the early part of the 21st century. The problem is population growth; the "enemy" is not reproduction but the reproduction rate.

The statistical dimension of the problem is as follows. The population of the world at the end of 1952 was about 2.6 billion; by the end of 1964, it was 3.3 billion. Based on these statistics, the world has added over 65 million people per year or about one and a quarter million people per week. The present world population is about 3.5 billion. At the current increase rate of slightly over 2 per cent per year, the world's population will increase to about 7 billion in 32 years (2,000 A.D.), and if the present growth rate continues will further increase to 10 billion within the 21st century. To reiterate, the present 65 million-plus annual rate of increase will double the world's population in about 32 years.[1]

The present international situation can be placed into historical perspective by the following estimates. Up to about 1850, human history produced a world population of about one billion; it took 75 years for the second billion and 35 years for the third. At the present growth rate, it will take about 15 years for the fourth and only 10 years for the fifth billion.[2] These statistics demand that a responsible assessment of the world's ability to sustain such a growth rate be made.

The term "population explosion" suggests that the cause is the increasing birth rate, but this is only partially true. The current unprecedented growth rate has been caused primarily by a decline in death rates since World War II. Death rates have responded to the development of science and technology more rapidly than has the birth rate. In fact, the death rate decline is characteristic of the developing countries—those countries of low per capita income with economies based on subsistence agriculture such as in Africa, Asia (except Japan) and Latin America—and is due to improved food production and distribution, expanded social organization, and mass application of modern public health methods.

The birth and death rates have been reduced in the "developed" countries—Europe, North America, Russia, Australia, New Zealand, and Japan—but the rate of population growth is higher in the developing countries. One-third of the world's population lives in the developed countries and has a growth rate of about 1.2 per cent per year. The remaining two-thirds of the international community, comprised primarily of the developing countries, has a growth rate of 2.5 per cent, or more than double that of the developed countries. It is obvious that the largest population growth exists where it can least be controlled. Therefore, two kinds of international communities exist: (1) those with a relatively high standard of living, low fertility, and reduced death rates and (2) those with a relatively low standard of living, high fertility, and reduced death rates.[3]

The international average increase in population is 2 per cent, although it is less than that in most of the industrialized nations of the Western world and Japan.[4] Based on a current growth rate of one child born every 14 seconds, the United States' population is projected from its present 200 million population (November 1967) to about 300 million in the year 2000. These statistical projections will vary with changes in the fertility rate and with the effect of social pressures upon the number of children women deliver during their childbearing years. Such projections assume that the current level of economic activity will continue and that no widespread epidemics or disastrous wars occur.

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† The state of New York is undertaking a program to sterilize female and male rats with minute doses of menstranol. One dose taken during gestation apparently sterilizes most rat offspring at birth.

The Political Dimension

Conception control is a sensitive issue to the leadership of many nations because population size is viewed as a measure of national strength. In contrast, uncontrolled population growth is frequently cited as *the* underlying social problem in most of the "emerging" nations of the world. It nullifies or severely inhibits efforts to resolve such social problems as poverty, war, disease, urban decay, malnutrition and lack of educational opportunity.

Because these problems are international, a declaration on population signed by 28 nations* has been presented to the United Nations. The document states that the "population problem must be recognized as a principal element in long range national planning if governments are to achieve their economic goals and fulfill the aspirations of their people." Therefore, family planning is of vital interest to nations as well as to individual families. Known as the *Universal Declaration of Human Rights*, the document identifies the family as the natural and fundamental unit of society. Based on this premise, it is reasoned that any decision regarding family size irrevocably rests with the family itself and cannot be made by anyone else. Accordingly, every family has the right to birth control information and to choose control methods. Such freedom of choice is increasingly being viewed as a basic human right indispensable to human dignity. Therefore, the choice of a conception control method is to be left to the conscience of the married couple involved with due consideration to psychological, sociological, medical and economic insights. At the practical level of application, unless citizens are made aware of conception control alternatives through education, the right of conception control will remain illusory.

Political differences among international communities have been intensified not only by reproduction, but also by medical and cultural values. Because of the medical and moral ethic which attempts to extend life by preventing death, the concept of death control has been more readily accepted than the concept of conception control. Changing the birth rate by conception control involves deeply rooted beliefs directly related to social institutions, cultural mores, family traditions, religious customs, economic arrangements, and psychological conditions. Throughout most of history a high birth rate has been necessary for survival of the species because death rates were so high. Because of the population explosion, high birth rates are contraindicated at a time when the international pattern has been a system of traditional beliefs and practices which legitimize high rates of reproduction. A variety of political barriers have arisen.

The difficulty in implementing conception control is suggested by the following list of barriers: (1) universal and early marriage so that the majority of the female's reproductive years are available for childbearing; (2) the general subordinate status of women, with few alternative roles available to them; (3) the universal desire for and prestige of having sons as security against old age; (4) low literacy levels which inhibit educational programs; (5) the absence of political and social support for family planning; (6) the intimacy of the subject and the taboo which inhibits talking about it deters an informed consensus on the population problem and family size; (7) the inability to perceive lowered mortality rates as a basis for producing fewer children since more will live; (8) an absence of appropriate organizations and health professionals within the community as a programming base to introduce family planning; (9) the lack of facilities for distributing conception control methods; (10) the economic cost of conception control; (11) religious, moral, or ideological objections; (12) general inertia, apathy, and resistance to change.[5]

The Socio-Economic Dimension and Consequences

According to available estimates, approximately two-thirds of the world's present population go to bed hungry. It is noteworthy that one-half of the world's population is concentrated on only 5 per cent of the earth's geographic surface, whereas 57 per cent of the land supports only 5 per cent of the people.[6] Agricultural experts hint that a maximum effort over the next 25 years could increase the productivity of the land now under cultivation enough to give the *present* world population more than a minimally adequate diet.[7] Unfortunately, in this length of time (25 years), the population in the developing areas will have doubled if their present rate of increase continues.

The Aswan Dam in Egypt is a remarkable engineering-agricultural feat. Water resources and irrigation made possible by this accomplishment will increase the food production potential of Egypt by 20 per cent. But, in the time required to build this dam, the Egyptian population will have increased by 30 per cent. Thus, even with agricultural expansion and more efficient farming, by the time the area's agricultural potential is realized, a net loss of 10 per cent will result because of the uncontrolled population increase.

* Australia, Barbados, Britain, Colombia, Denmark, Dominican Republic, Egypt, Finland, Ghana, India, Iran, Japan, Jordan, Malaysia, Morocco, Nepal, Netherlands, New Zealand, Norway, Pakistan, Singapore, South Korea, Sweden, Thailand, Tobago, Trinidad, Tunisia, United States, Yugoslavia.

The overriding problem facing the world's developing nations is industrialization. To industrialize a country is an overwhelming undertaking. Fifty per cent of India's population is engaged in agriculture compared to 5 per cent in the United States. If industrialized nations are defined as being those who employ less than 25 per cent of the population on farms, the industrialization of India would require 150 million new urban jobs. At the base rate of $3,000 cost to create each job—an unrealistically low estimate—the industrialization of India would require 450 billion dollars. Yet this figure represents a 100 per cent investment of India's yearly gross national product. This cost estimate is based on the *present* population only. Unfortunately, by the time the money is available and industrialization implemented, the Indian population would have increased by more than 200 million at their present rate of expansion.

Although food, jobs, and water resources are basic considerations in the solution of the population explosion, perhaps the more critical problems are those resulting from physical crowding itself. Among the lower animals a restricted living space produces profound disruptions in normal social and psychological behavior.[8] Whether similar disruptions apply to human existence remains a research problem for social psychology. The idea that present day urban and ghetto conditions produce psycho-social disruptions is a logical hypothesis.

The Scientific Dimension

Although the aforementioned considerations are of major magnitude, health science and technology have also contributed to the population explosion. By health science is meant health research, medical knowledge, better nutrition, disease control, reduced infant mortality, the decline in death rates, and better application of available knowledge (health education) to the increase of live births, human development, and longevity of life. All are factors which have contributed directly or indirectly to the population explosion.

The medical contribution to the population explosion has been aptly termed "death control." About death control White[9] states: "In recent years as a result of medical science and sanitation, the death rates have fallen sharply. In fact, this is the main reason for the world population explosion." Hoaglund[10] elaborates further as follows: "It is especially ironic that the humane practices of medicine and public health, dedicated to reducing physical suffering and prolonging healthful lives, should be the primary cause of a major social disease. This disease is the unprecedented increase in the world population. . . ."

Possible Solutions

In the past, three factors have controlled the size of populations: starvation, disease and predation (man is his own predator through wars). Sexual restraint has been suggested as a fourth alternative. To rationalize the continued existence of war, starvation, disease and use of sexual restraint as a means of population control would not only be an example of man's planned inhumanity to man, it is also illusory.

Even if permitted, starvation, disease, and war can no longer control the human population dilemma and sexual restraint is improbable. A large scale nuclear war would decimate about one-half of the world's present population. Yet, if the current rate of population increase (2.2 per cent per year) persisted among the survivors, within 34 years the world's population would be reconstituted to its present level. Further, war casualties are exceeded by the number born and those lives extended by death controls. Those seriously concerned with the population crisis have committed themselves to the only rational method of controlling population, that of deliberate conception control at the individual and family level. Science and technology now possess the potential to defeat starvation while public health measures and modern medical technology has the potential to eliminate epidemics.

Methods of Conception Control

History provides no evidence that humans possess sufficient constraint to volitionally abandon sexual expression and thereby reduce pregnancy and births. Planned conception therefore seems the only feasible solution. This approach does not eliminate moral-ethical problems; it examines them in relation to the method used. Legalized abortions exemplify this point.

Japan and Czechoslovakia permit legalized abortions. Although this is one means of controlling population, moralists argue that this method also increases the death rate and that abortion is thereby synonymous with murder. As such, the abortion issue includes serious ethical-moral considerations. The states of Colorado, North Carolina and California have legalized abortions and at least 28 other states are considering the implementation of abortion laws.

Because of the abortion issue, the most favored methods involve reducing the birth rate by preventing conception. A number of methods are now available as are "good" estimates of their effectiveness. For example, of 1,000 normally fertile married women regularly having intercourse with their husbands, 900 will become pregnant within one year if they practice no conception control; 400 will become pregnant using the "rhythm" method; 100 or less, if either the husband or wife use a mechanical con-

traceptive (condom, diaphragm, etc.); 10 or less if the ovulation control pills are used properly; and of women who retain intrauterine devices, none will become pregnant. The male pill, injected time capsules, once-a-month pills, and the morning after pills for women remain experimental.

The data in *Table 1* shows the comparative effectiveness of various contraceptive methods as revealed by a recent research study.[11] The critical observer of this data should not only be alert to the reliability implications presented, but should inquire why this hierarchy of success or failure exists. A clear-cut understanding of the physiological, psychological, and esthetic factors associated with use of the various forms of contraception must be a part of the fund of information, personal and professional, of each medical, nursing, and paramedical student.

TABLE 1

COMPARATIVE EFFECTIVENESS OF SELECTED METHODS OF CONTRACEPTION

Method	*Crude Pregnancy Rate (Pregnancies Per 100 Women)*
Oral pill	Less than 1/100
I.U.D.	2
Condom	13.8
Diaphragm	14.4
Withdrawal	16.8
Rhythm	38.5
Douche	40.8
All other	30.3

Use of Conception Control

A recent sociological study has concluded that conception control is becoming universal in contemporary America.[12] According to the survey, 84 per cent of the American women sampled report that they use contraception and 6 per cent more (90 per cent) indicate that they expect to use it in the future. Results of the same survey conducted in 1955 among a representative sample of 5,600 women disclosed that 70 per cent of married women used contraceptives in some form. The sociologists making the study report that the greatest change in attitude toward and use of contraception has occurred among college educated Catholic women. The oral contraceptives, like the mechanical and foam types before them, have had widespread impact on living during the past six years. Whether they will effectively and efficiently contribute to the long-range solution of the population dilemma remains to be seen over the next thirty years. Likewise, whether the moral and medical concerns* attending use of the pill are valid issues can only be answered by future developments.

The moral issues are summarized as follows. Some argue that contraception is immoral because it deliberately prevents life from being created. Others contend that irresponsible population increases at the expense of the present population is equally immoral. Some fear that availability of the pill will encourage promiscuity.** Although there is no evidence that contraception and promiscuity are linked, logical reasoning supports this contention as a hypothetical possibility. At this point the moral issues have been identified but remain unresolved.

Equally essential in the preparation of the medical and nursing student is an understanding of the ethical issues based upon established theological positions held by religious groups. For example, of concern to the Roman Catholic Church is whether a given method of conception control prevents union of the sperm and ovum or prevents implantation of the fertilized egg. According to Catholic thought, a contraceptive method preventing implantation of a fertilized ovum has in effect induced an abortion and is tantamount to murder. The perceptive and conscientious professional should have these issues clearly in mind as part of his decision-making and problem-solving tools.

Conception Control Programming

Sincere efforts are being attempted to alleviate the population explosion. The Ford Foundation recently spurred contraceptive research with funds approximating 16 million dollars directed to universities and other organizations. The funding is designed to supplement federal and private funds to cope with international population problems via development of simpler, safer, and more effective methods of conception control.

The Population Council (an international voluntary organization) documents in its 1966 report that the birthrate has decreased over the past ten years

* In regard to the medical aspects of the pill's use, the Federal Drug Administration reports that there is no evidence that any of the birth control pills now on the market are carcinogenic. Officially, the pills are considered safe, though contraindicated for women with a history of phlebitis, pulmonary embolism, liver disease or jaundice, and genital or breast cancer. Though there is no evidence that the pill is harmful at this point; there is insufficient experience to conclude that it is completely safe. At least 20 years of careful patient follow-ups is needed before physicians will be able to prescribe the pill without reservations as to harmful effects.

** No evidence exists that oral or mechanical contraceptives have resulted in a corresponding increase in premarital or extramarital intercourse. In the opinion of the author, it is a fallacy to think that the more efficient modes of contraception are being extensively used or that a corresponding alteration in basic values is the present or inevitable result of extensive use of contraceptives.

in several of the developing nations of the world.[13] Two such countries are South Korea and Taiwan. In these countries, the Population Council plays an advisory role to large-scale family-planning programs. The declines in birthrates in these two countries are attributed to mass distribution of the intrauterine device, an inexpensive and reliable plastic mechanical device for women.

Sweeping proposals to meet the urgency of today's population crisis have been suggested by some. A population scientist[14] recently offered a six-point population control program for the United States: (1) a federal agency to promote reproductive responsibility; (2) tax laws that would discourage large families; (3) mandatory birth control education; (4) legalized abortions; (5) accelerated government research on population regulation; and (6) some form of compulsory birth control if the previous steps are not effective. This proposal was partly aimed at discouraging symptomatic treatment of the population problem through traditional approaches such as increased food production and environmental manipulation.

Another proposed birth control program was directed at temporary sterilization of all women, coupled with government approval before any woman would be permitted to conceive.[15] The program was presented in two stages. In the first, the general public would vote on the population growth it desires. The census bureau would determine the number of children each couple could have based on the predetermined growth rate, and allocation certificates would be issued to prospective parents. To initiate the second stage, all women would be temporarily sterilized by a time capsule contraceptive. When children were desired, the time capsule would be removed by a public health agency after a certificate authorizing children was submitted. Following birth of the child, the contraceptive capsule would be reinserted. In this particular program, only those people who wanted and could afford children would reproduce. Further, couples who did not want children or who preferred fewer than they were entitled to could sell their surplus certificates to couples preferring more than the allotted number of children. The technological means of implementing this kind of program do not exist now, but they will in the very near future. The proposal therefore merits consideration today.

Recent federal policy statements issued by the Department of Health, Education, and Welfare announced that birth control services for the nations' poor will be actively offered, not just made available on request.[16] Previously the department's policy provided family planning information only if requested by persons receiving federally-supported health or welfare services. The program is based on five points: (1) plans for comprehensive health services (including maternal and child health) must include consideration of family planning services; (2) beneficiaries of assistance programs should be fully informed of the availability of family planning services; (3) an individual's eligibility for relief should not be dependent on the acceptance or refusal of a contraceptive program; (4) family planning programs must guarantee freedom from coercion or pressure of mind or conscience; and (5) states which administer federally-funded welfare programs will be required to develop, if necessary, a program to prevent and reduce the number of illegitimate births. President Johnson asked Congress to double the 28 million dollars budgeted for birth control programs this fiscal year to implement this program.

Urban antipoverty agencies have been developing free family planning clinics in slum areas. Emphasis has been on family planning and the prevention of infant mortality through services and education rather than treating the symptoms of poverty with temporizing measures. The educational approach is focused on the following question: "What is family planning?"

Family planning is *not* (1) taking away the right of the husband and wife to have children; (2) leaving the balance of population to chance; (3) restricting the normal expression of the sex drive of husband and wife; (4) endangering the wife's or husband's health by use of devices or drugs forced upon them; (5) encouraging the unmarried to engage in sexual activity because pregnancy can be prevented; (6) a form of abortion; (7) a way of "compromising" religious principles; (8) dictating to under-developed nations; or (9) a subtle method of genocide.

Family planning *is* the husband and wife (1) using intelligence and a personal attitude of responsibility to diminish the burgeoning population increase; (2) determining when to have children, thus avoiding bringing into the world unwanted children who cannot be properly cared for; (3) deciding whether they will have children early in marriage or later; (4) spacing between children to protect the health of the mother and the offspring; (5) preventing the birth of children who have little chance to live because of malnutrition and disease; (6) freely engaging in sexual expression without fear of pregnancy; (7) using effective drugs or devices prescribed by physicians to regulate conception; (8) preventing pregnancy without endangering the health of the wife; (9) engaging in what has become an internationally acceptable practice; (10) choosing a means of preventing pregnancy which is acceptable to the beliefs of both husband and wife; (11) recognizing that population is a major international problem;

(12) assuming personal responsibility for the health and development of the family and society; (13) availing themselves of their right to scientific information.

Summary

There is a limit to the amount of usable land, air, and water for the housing and feeding of people. To maintain some semblance of our present standard of living and to progress beyond it, the world's population should not exceed 10 billion people.[17] At the present rate of increase there will be 10 billion people by early in the 21st century. Man must learn to control population growth. Clearly, either the birth rate must come down, the death rate must go up, or, more ethically, if the world is to remain permanently viable, deaths must balance births so that the growth rate is approximately zero. At the personal level this means that the number of children per family must be limited. If voluntary control fails, the number of children per family may well require regulation by external (legal) control.

The technology of effective conception control for females exists and is being perfected for both males and females. Knowledge of conception control methods is widespread in the lay population. Misconceptions about conception control are therefore inexcusable among health professionals. Appropriate programming must be introduced at all educational and experience levels for professionals, laymen, and students.

Available methods of conception provide the potential to control international, family, and illegitimacy birth rates. A large part of the childbearing population no longer needs to conceive children involuntarily because of lack of funds, lack of information, or lack of reliable or acceptable methods. Conception control can be related to the concept of family planning in which children are logically and appropriately spaced.

The size of the population problem has been determined primarily by an increase in and application of health-related and medical knowledge. Biomedical sciences have helped create the problem by developing sufficient means for prolonging life; now it must alleviate the problem by intensive study of the female and male reproductive process to develop improved contraceptive technology.

Demographic and economic analyses have provided facts so clear that they dispute ideological arguments. Social concern, political action, and basic research have followed. Indeed, demographic, economic, and scientific knowledge have made doctrinal controversies with political and religious bases virtually obsolete, and may eventually alter theological interpretations.

As better international health measures are developed and applied, the death rates can be expected to fall further, thereby accelerating population growth. In the immediate past, medical science and public health technology have demonstrated the ability to help people survive who would not have survived in the past. However, too frequently they survive in poverty, ignorance, sickness and social degradation. This points to the core of the population problem—the quality of human life internationally and locally. Solutions to the population problem support the old but currently re-popularized principle that a healthful life is a basic human right; also that national resources should be devoted to the assurance of this right. Although governments, foundations, voluntary and official agencies, corporations, and individuals are aware of the threat posed by the population explosion, we need to expand substantially existing knowledge in psychology, sociology, physiology, theology, ethics and economics now.

Whether humans will exercise the necessary social and personal controls to achieve population stability is a matter of conjecture. The final result depends more on human knowledge, its application by human beings, and how humans feel about each other than it does on science and technology.

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Law-Medicine Comment

Abortion

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AMERICAN AND ENGLISH LAW regards any interference with pregnancy as criminal, unless for therapeutic reasons. As a consequence, abortion is a statutory crime throughout the United States, and the exception of therapeutic abortion is recognized in all jurisdictions. Statutory wording, however, may be non-specific and lacking in clarity, and the therapeutic exception most commonly refers only to preserving or saving the life of the mother. Legislation to liberalize abortion laws was introduced in 30 states last year, but was adopted in only three. Of these, Colorado and North Carolina adopted the provisions of the Model Penal Code (American Law Institute, 1962), which permit abortion if there is belief of substantial risk of grave impairment to the physical or mental health of the mother, or that the child may be born with grave physical or mental defects, or that the pregnancy resulted from rape, incest, or other felonious intercourse. California liberalized its law, but did not adopt the provision for the defective fetus.

Definitions

The word "abortion" itself has created some confusion, since there is ambiguity in its meaning. In medicine, it presently means the expulsion of the products of conception, spontaneously or by induction, before the child is viable. Older medical terminology reserved "abortion" for the first three months of pregnancy, and used the term "miscarriage" thereafter until viability. Legal terminology, on the other hand, is concerned with induced abortion, and uses the word to include any timely delivery, voluntarily procured with intent to destroy the fetus.

Quickening, or perceptible fetal movements, usually occurring after the fourth month of pregnancy, is still of some legal significance. At common law, life was thought to begin at this point for some purposes, consistent with the belief that the soul entered the unborn infant when it turned in the womb. Quickening is retained in present Kansas law, which provides greater punishment for killing an unborn quick child than for abortion prior to this point in gestation.

Therapeutic Abortion

A therapeutic abortion generally is one performed to save or preserve the life or health, physical or mental, of the mother. The permissible range of legal therapeutic abortion, however, is not readily ascertainable under the usual statutory wording, so that differences in interpretation may arise. For example, problems could occur in respect to conditions not immediately threatening the mother's life, but affecting her subsequent longevity. It might also be questioned whether the danger to life includes mental as well as physical conditions, the possibility of suicide, or the risk of self-induced abortion.

The necessity of revising existing abortion laws has become increasingly apparent. State statutes consider induced abortion criminal unless performed for therapeutic reasons. The therapeutic exception, as in Kansas, is commonly limited to preserving or saving the life of the mother. The permissible range of therapeutic abortion may be difficult to ascertain. The Kansas Judicial Council has proposed substantial liberalization of present law by broadening the circumstances under which abortion may be justifiably performed. The Kansas Medical Society has proposed that medical abortion be removed from the domain of the criminal law, and thus be accorded a status similar to other medical procedures under appropriate administrative and professional supervision. Both proposals merit favorable consideration and would effect essentially identical results. Adoption of the medical society proposal would additionally establish Kansas leadership in this field.

The possible impact on the mother's health of an unwanted or potentially deformed child may also be important. The latter issue is currently involved in California, in disciplinary action against physicians resulting from abortions performed to prevent the birth of defective children after maternal rubella infection. The medical defense is that the mother's life or health was threatened through fear of bearing an abnormal child. The corresponding legal view, enun-

ciated by a deputy attorney general, is that saving the life of the mother cannot be construed to mean preserving her well-being. The relevant facts are reported in greater detail in the next section.

Decisions of Interest

Construction of statutes. An English case (1939)[1] illustrates the interpretation of therapeutic abortion to include longevity, under statutory law prohibiting "unlawful" abortion and permitting destruction of the child to preserve the life of the mother. A 14-year-old girl, pregnant as a result of rape, was aborted by a prominent gynecologist who invited the subsequent criminal prosecution. The physician was acquitted by the jury, on instructions indicating that health could be so depressed as to shorten life. The judge reasoned that life depends on health, and health may be so impaired that death results. He stated that the act was lawful if the doctor was of the opinion, on reasonable grounds and on adequate knowledge, that the continuation of the pregnancy would probably have made the woman a physical or mental wreck.

A Massachusetts decision (1944)[2] illustrates liberal interpretation of a statute containing no express exception. The court affirmed the conviction of the defendant physician who had performed an abortion upon his own wife, in his office, without consultation. The court, however, stated that a physician may lawfully procure the abortion of a patient if he believes in good faith that it is necessary to save her life or to prevent serious impairment to her mental or physical health, and if his judgment corresponds with the general opinion of competent practitioners in the community in which he practices.

In California, in proceedings before the Board of Medical Examiners,[3] two physicians were disciplined, both by reprimand and one by temporary license suspension, for activities in connection with abortions to prevent birth defects due to rubella. The board ruled that these activities constituted unprofessional conduct which required disciplinary action. California law, modified in 1967, permits therapeutic abortion for substantial risk to the physical or mental health of the mother, whereas the former law referred only to the mother's life. It was held that even under the new law, fear that an infant may be deformed is not a permissible ground for performing an abortion. The physicians contended that (1) they acted in good faith and with a sincere opinion that it was acceptable medical practice to perform therapeutic abortions in accredited hospitals in cases of proven rubella during the first trimester, when the approval of a therapeutic abortion committee had first been obtained; (2) four medical schools in the state taught that it was acceptable medical practice to perform therapeutic abortions under such circumstances; and (3) in respect to charges of aiding, abetting, offering, and agreeing, they acted as members of a therapeutic abortion committee of an accredited hospital, in conformity with what was believed to be acceptable medical practice, without precedent that such conduct violated the criminal abortion statute. [This issue appears unsettled at present, since the board's action in respect to one of the physicians has been reversed by court order.]

Failure to recommend abortion. A New Jersey decision (1967)[4] involved an action by an infant and his parents against the physician who allegedly had not recommended an abortion, thus permitting the birth of the infant with defects due to rubella infection. New Jersey law considered abortion a crime if performed "without lawful justification." In affirming the dismissal of the complaints, the Supreme Court assumed that somehow, somewhere, the mother could have obtained an abortion that would not have subjected the participants to criminal sanctions, and that she did not do so because she relied on the incorrect advice of the defendants. The court held that the child could not recover for "wrongful life" because there were no damages cognizable at law, and that the parents could not recover because there were no cognizable damages and because public policy precluded recovery.

Developments in Kansas

Kansas abortion laws, of 1868 vintage, are presently being reappraised in order to effect desirable revisions. These laws consider abortion a crime, unless necessary to preserve the life of the mother, or unless advised by a physician to be necessary for that purpose. Areas of possible conflict are therefore apparent, and penalties might be imposed, through criminal proceedings or medical license suspension or revocation, for actions performed in good faith and in conformity with established medical standards.

Kansas statutes provide as follows: Death of the mother resulting from an unlawful abortion is punishable as manslaughter in the first degree under KSA 21-407 or KSA 21-410. The willful killing of an unborn quick child may be manslaughter in the first degree under KSA 21-409. An act done with the intent to procure an abortion is punishable as a misdemeanor under KSA 21-437. Activities relating to the performance or procurement of a criminal abortion are unprofessional conduct, for which a license to practice medicine may be suspended or revoked, under 65-2837(e) and 65-2836(b) of the Healing Arts Act.

Kansas decisions. The Supreme Court, in *State v. Nossaman* (1926),[5] held that in an abortion prosecution, the accused has the burden of proving the exculpating exceptions, namely, that the procedure was necessary or advised to preserve the life of the

woman, although the state must, of course, prove the elements of the crime. This emphasizes the necessity for proper consultation and documentation. In another decision, *Joy v. Brown* (1953),[6] a civil action for wrongful death was permitted against the abortionist, even though the woman consented to the procedure. The court stated that generally a party who consents to an immoral or criminal act cannot recover from the other participants for the consequences of such act. The general rule, however, was held inapplicable, since no person may lawfully and validly consent to an act the purpose of which is to destroy human life. The woman could have maintained an action for damages if she had survived. Since she did not survive, an action for wrongful death could be maintained.

The Kansas Judicial Council has proposed statutory revisions following the Model Penal Code provisions.[7] The recognized conditions justifying abortion under this are preservation of the life of the mother, substantial risk of impairment of the physical or mental health of the mother, substantial risk that the child would be born with physical or mental defects, or if the pregnancy resulted from rape, incest, or other felonious intercourse. Criminal abortion is to be defined as the purposeful and unjustifiable termination of the pregnancy of any woman other than by live birth. The necessity for distinguishing the quick infant will be eliminated by defining pregnancy as that condition of a woman from the date of conception to the birth of her child.

These recommendations represent substantial liberalization of existing abortion law and have been adopted by only two states at the present time. Several points should be noted in regard to the local effects of the proposed changes, which include repeal of KSA 21-409 and 21-437: A collective reading of the resulting statutes reveals that a person, under 21-410, may be charged with manslaughter if death of the mother results from acts performed with the intent to commit an abortion, provided that the woman was pregnant. Such acts are excused if necessary to preserve the life of the mother, or if advised by a "physician" to be necessary for that purpose. The physician apparently need not be licensed to practice medicine and surgery. On the other hand, under the new enactment, "termination of pregnancy" is excused if not "purposeful and unjustifiable." Justification is spelled out for persons licensed to practice medicine and surgery.

Consideration should be given to the repeal of 21-410, and the consolidation of the entire subject in the new statute. Additional clauses in the new enactment might then include acts done with the intent to commit criminal abortion, whether or not the woman is actually pregnant; the death of the mother resulting from such acts; and justification for a person not licensed to practice medicine and surgery in an emergency reasonably believed to be threatening the life of the mother.

Finally, the definition of criminal abortion appears vulnerable in respect to the phrase "live birth," which does not have uniform meaning, and which in criminal law generally means the complete extrusion from the mother and the subsequent manifestation of a sign of life. Under the definition as proposed, the purposeful and unjustifiable termination of pregnancy *by live birth* would not be criminal abortion, even if the fetus were nonviable after initially satisfying the requirements of live birth. Therefore, criminal abortion should be redefined, perhaps as purposeful and unjustifiable termination of pregnancy with destruction of the child, or with the intent to destroy the child, at any point of gestation.

The Kansas Medical Society, in reflecting the medical viewpoint, has also recommended revision of the present abortion laws, in a resolution adopted by the House of Delegates in May, 1968.[8] The essence of this resolution is that the procedure of abortion should be placed in the realm of medical judgment, as exercised by licensed physicians within the confines of licensed and accredited hospitals. Abortion would thus in part be removed from the area of the criminal law and placed in a medical environment, where it would receive a status comparable to other medical and surgical procedures. Control and supervision would be exercised through the standards of licensure and accreditation, as maintained in modern institutions by their governing bodies and medical staffs. This enlightened approach, which would mark another first for the State of Kansas, deserves serious consideration.

Appendix

A. Kansas Statutes Relating to Abortion.

1. KSA 21-407. *Manslaughter in the first degree.* The killing of a human being without a design to effect death, by the act, procurement or culpable negligence of another, while such other is engaged in the perpetration or attempt to perpetrate any crime or misdemeanor, not amounting to a felony, in cases when such killing would be murder at the common law, shall be deemed manslaughter in the first degree.
2. KSA 21-409. *Same; killing unborn quick child.* The willful killing of any unborn quick child, by an injury to the mother of such a child, which would be murder if it resulted in the death of such mother, shall be deemed manslaughter in the first degree.
3. KSA 21-410. *Same; death of mother resulting from intent to commit abortion.* Every person who shall administer to any pregnant woman any medicine, drug, or substance whatsoever, or shall use or employ any instrument or other means

with the intent thereby to destroy the fetus, unless the same shall have been necessary to preserve the life of such mother, or shall have been advised by a physician to be necessary for that purpose, if the death of the mother thereof ensue from the means employed, shall be guilty of manslaughter in the first degree.

4. KSA 21-437. *Procuring abortion or miscarriage; penalty.* Every physician or other person who shall willfully administer to any pregnant woman any medicine, drug, or substance whatsoever, or shall use or employ any instrument or means whatsoever, with intent thereby to procure abortion or the miscarriage of any such woman, unless the same shall have been necessary to preserve the life of such woman, or shall have been advised by a physician to be necessary for that purpose, shall upon conviction be adjudged guilty of a misdemeanor, and punished by imprisonment in the county jail not exceeding one year, or by fine not exceeding five hundred dollars, or by both such fine and imprisonment.

5. KSA 65-2836. *Licenses, suspension or revocation, when.* A license may be revoked or suspended when the licensee is guilty of any of the following acts or offenses: . . . (b) Immoral, unprofessional or dishonorable conduct.

6. KSA 65-2837. *Same; unprofessional conduct defined.* For the purpose of the preceding section, "unprofessional conduct" shall consist of any of the following acts: . . . (e) Performing, procuring or aiding and abetting in the performance or procurement of a criminal abortion.

B. Kansas Judicial Council Proposal.[7]

1. 21-407. *Criminal Abortion.* Criminal abortion is the purposeful and unjustifiable termination of the pregnancy of any woman other than by a live birth.

2. A person licensed to practice medicine and surgery is justified in terminating a pregnancy if he believes there is substantial risk that a continuance of the pregnancy would gravely impair the physical or mental health of the mother or that the child would be born with grave physical or mental defect, or that the pregnancy resulted from rape, incest, or other felonious intercourse; and either:
   a. Three persons licensed to practice medicine and surgery, one of whom may be the person performing the abortion, have certified in writing their belief in the justifying circumstances, and have filed such certificate prior to the abortion in the licensed hospital where it is to be performed, or in such other place as may be designated by law; or
   b. An emergency exists which requires that such abortion be performed immediately in order to preserve the life of the mother.

3. For the purpose of this section pregnancy means that condition of a woman from the date of conception to the birth of her child.

4. For the purpose of subsection (2) of this section all illicit intercourse with a girl under the age of 16 years shall be deemed felonious.

5. Criminal abortion is a Class D felony.

Comment

This proposal substantially broadens the circumstances under which an abortion may be justifiably performed. The present law authorizes therapeutic abortions only when necessary "to preserve the life" of the mother. Subsection (2) following the Model Penal Code, recognizes other conditions that justify abortions.

Subsection (3) eliminates the necessity for distinguishing between the *quick child* and other fetus.

Sections to be repealed. KSA 21-409, 21-437.

C. Kansas Medical Society Resolution.[8]

Abortions. Be it enacted by the State of Kansas that any person or persons other than a physician licensed to practice medicine and surgery in the State of Kansas and within a licensed and accredited hospital who terminates a pregnancy of another otherwise than by live birth shall be [guilty of a felony].

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6. *Joy v. Brown,* 173 Kan. 833, 252 P.2d 889 (1953).
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DR. MORGAN IS HONORARY CHRISTMAS SEAL CHAIRMAN

The president of the Kansas Medical Society, John L. Morgan, M.D., Emporia, has been named Honorary 1968 Christmas Seal Chairman. The announcement was made recently by Charles Pokorny, M.D., Halstead, president of the Kansas Tuberculosis and Health Association.

"We are especially pleased that Dr. Morgan has accepted the campaign chairmanship," said Dr. Pokorny. "Under his capable and knowledgeable leadership, the 1968 Kansas Christmas Seal campaign will be even more successful than ever before."

The new chairman said he was pleased to have the opportunity to serve the Christmas Seal Campaign. From experience he knows what tuberculosis can mean and the splendid results that can be obtained with the new anti-tuberculosis drugs.

"It is important," said Dr. Morgan, "that the Christmas Seal message reach every Kansan so we may continue the fight to eradicate tuberculosis and increasingly control the other respiratory diseases."



CP + T

Newsletter

Secondary Anti-Tuberculosis Drugs–Part II: Resistant Typical Mycobacterium tuberculosis, Unclassified Mycobacteria

(Part I on the chemotherapy of tuberculosis, published in the September Newsletter, discussed typical *Mycobacterium tuberculosis* and the use of primary drugs.)

PULMONARY DISEASE, which is clinically indistinguishable from *Mycobacterium tuberculosis,* can be produced by a number of species or strains of mycobacteria. These include *Mycobacterium kansasii* and the so-called Battey bacillus. It is recommended that the term "unclassified" rather than "atypical" or "anonymous" be used in referring to these strains. At the present time, the provisional categorization of these organisms into four large groups provides a useful working basis for identification and reference.

Group I—Photochromogens (including *M. kansasii)*

Group II—Scotochromogens

Group III—Nonphotochromogens (including the Battey bacilli)

Group IV—Rapid growers (including *M. fortuitum)*

The unclassified mycobacteria are identified by their *in vitro* growth characteristics.

The etiologic significance of these mycobacteria recovered from patients may be derived from (1) the number of colonies per culture, (2) the number of specimens positive over a period of time, and (3) the absence of other recognized etiologic agents for observed disease. Specific skin test antigens are available only through the United States Public Health Service but may be diagnostically helpful (Group I "PPD-Y," Group II "PPD-G" or PPD-216, Group III "PPD-B").

From the Clinical Pharmacology Study Unit and the Therapeutics and Pharmacy Committee, University of Kansas Medical Center.

Clinical pulmonary infection with *Mycobacterium kansasii,* Group I, is most frequent in the Mississippi Valley; infection with the Battey bacillus is most frequent in the southeastern United States. Group II and IV organisms may cause scrofula, cutaneous granulomas (usually in children), and rarely pulmonary infections, usually in debilitated immunologically incompetent adults.

All of the unclassified mycobacteria are partially or absolutely resistant to the "primary" antituberculous drugs, INH, PAS and streptomycin. The emergence of drug resistant "typical" organisms or infection with unclassified mycobacteria necessitates the utilization of the so-called, "secondary drugs." These drugs are less effective than the three major drugs and are generally more toxic. They include: pyrazinamide, ethionamide, ethambutol, cycloserine, viomycin, kanamycin, thiacetazone, capreomycin, and recently rifampin.

After identification of primary drug resistant "typical" organisms or identification of an unclassified organism, the therapeutic regimen should be based upon the clinical course of the patient and the results of drug susceptibility tests. A typical regimen might include one or two primary drugs at high doses (INH 12 to 24 mg/kg and PAS 16 to 24 gm per day) and two to three secondary drugs, each chosen for maximum therapeutic effect and minimal toxicity. In the event that tubercle bacilli are resistant to all of the major drugs, various combinations of the secondary agents may be used. At least two drugs, to which the patient's organisms have been found susceptible, should be given simultaneously. Many drug regimens are possible, some of which are still being studied in controlled clinical trials to determine the best programs. The Battey bacillus (Group III)

and some Group I infections may be particularly refractory to chemotherapy. Localized "unclassified disease" may sometimes be best treated with surgical excision of infected tissue.

Secondary Drugs

Pyrazinamide (PZA)

PZA is a more effective antituberculous drug than PAS in experimental tuberculosis in mice and guinea pigs. It is active against intracellular tubercle bacilli. Combination with INH is more effective than INH—streptomycin—PAS combinations in mice; however, this has not been confirmed in humans, possibly because PZA toxicity prevents administration of high doses for sufficient time. Bacterial resistance develops quickly but is delayed by combination therapy. PZA is used orally in combination, most often with INH, but occasionally with streptomycin, PAS, or ethionamide, and a third drug depending upon organism sensitivity. PZA has no effective sensitivity testing method.

PZA is well absorbed after oral administration and excreted predominantly by the kidneys. The major toxic manifestation, the incidence of which is dose dependent, is a hepatitis associated with elevated serum transaminase values. Toxic hepatitis occurs in 10 to 20 per cent of patients given daily doses of 25 to 35 mg/kg orally. Hyperuricemia, with precipitation of gouty attacks, gastrointestinal upsets, lymphadenopathy, and fever are other undesirable side effects. Many patients treated with PZA require hospitalization; all require careful chemical monitoring.

Ethionamide

Ethionamide is effective against extracellular and intracellular organisms, but resistance emerges rapidly *in vitro* unless the drug is given in combination with streptomycin or INH. There is some cross-resistance to thiacetazone.

Ethionamide is well absorbed when administered orally. The drug is distributed throughout the body tissues and fluids and enters the cerebrospinal fluid easily in the presence or absence of meningitis. Ethionamide is effective clinically in combination with the primary drugs and one or more of the secondary drugs, particularly cycloserine and PZA. The usefulness of ethionamide in man is limited by the side effects produced by therapeutic doses (0.5 to 1 gm twice daily). Therefore, most regimens now limit the daily dose to 750 mg per day. Loss of appetite, nausea, and vomiting may force cessation of therapy. Postural hypotension, drowsiness, impotence, and other effects suggestive of ganglionic blockade are observed frequently. Allergic hepatitis and peripheral neuropathy are less commonly seen.

Ethambutol (Myambutol)

Ethambutol inhibits almost all strains of *Mycobacterium tuberculosis,* and no cross-resistance between it and other antituberculous drugs has been reported. The drug is absorbed well after oral administration. It is usually given as a single, oral, daily dose of 25 mg/kg per day for two months and 15 mg/kg per day thereafter. The drug is excreted slowly in the urine, and dosage should be reduced in patients with impaired renal function.

Pediatric experience has been very limited and the manufacturer makes no recommendation for the use of the drug in children under 13 years of age. Ethambutol is always given in combination with other antituberculosis drugs, both for initial use and retreatment. There is some evidence that ethambutol inhibits the development of resistance to INH.

The only major toxic effect of ethambutol is retrobulbar neuritis. At doses now recommended, ocular effects are probably minor and reversible, although permanent loss of visual acuity has been reported. Complete ophthalmologic examination, including tests for visual fields and color discrimination, should precede therapy and be repeated monthly during therapy. Any complaint of eye symptoms demands frequent and careful ophthalmologic observation. Anaphylactoid reactions and peripheral neuritis occur infrequently. The drug has demonstrated teratogenicity at high doses in some animals; the possibility of human teratogenicity cannot be dismissed.

Cycloserine (Seromycin, Oxamycin)

Cycloserine is a broad spectrum antibiotic produced by *Streptomyces* species. It is occasionally used in non-tuberculous infections. It is well absorbed from the gastrointestinal tract and is excreted slowly in the urine. Cycloserine is most effective when given in combination with one of the "primary drugs" or with PZA or ethionamide. It should not be given alone. The therapeutic dose is 250 to 500 mg given twice daily.

The most common adverse effects of cycloserine involve the Central Nervous System and include headache, vertigo, tremor, somnolence, dysarthria, confusion, behavior disturbance, psychosis, paresis, coma, and convulsions. Depression may be a serious problem. Convulsions, petit and grand mal seizures may occur in 10 per cent of patients, which may be controlled with pyridoxine and anticonvulsants, are frequent at doses higher than 1 gm per day. Cycloserine is contraindicated in patients with a history of seizures or psychic disturbances. The dose should be reduced in patients with impaired renal function.

Thiacetazone (Conteben, Aminthiozine, Tibione)

Thiacetazone is slightly less active than streptomy-

cin and is approximately as active as PAS. It is well absorbed after oral administration. Toxicity is frequent and the most undesirable side effect is fatal acute hepatic necrosis. Gastrointestinal intolerance rises rapidly with doses above 150 mg per day. Skin eruptions and anemia are not uncommon. A dose of 150 mg per day or higher appears to be necessary for maximum effectiveness.

Viomycin (Vinactane, Viocin)

Viomycin is a polypeptide antibiotic produced by *Streptomyces* species. It is more effective *in vitro* than PAS and less active than streptomycin against many strains of human tubercle bacilli. Primary drug resistant strains of tubercle bacilli are sensitive to viomycin, but kanamycin resistant organisms demonstrate cross-resistance to viomycin. However, viomycin resistant organisms may be sensitive to kanamycin.

Viomycin is poorly absorbed after oral administration but is well absorbed when given intramuscularly. The drug enters the cerebrospinal fluid poorly in the absence of meningitis. Generally, 2.0 gm viomycin is administered in two divided IM doses, 12 hours apart, and repeated every third day. Treatment is continued for four to six months or less, depending on the appearance of toxic side effects. It is given in combination with another drug to which the tubercle bacilli are sensitive. Adverse reactions occur more frequently with viomycin than with streptomycin. The major toxic effects of viomycin are on the 8th cranial nerves and the kidneys. Tinnitus, loss of auditory acuity, and vestibular misfunction occur frequently in patients on prolonged therapy. Renal injury may be manifested by azotemia, albuminuria, and the appearance of formed elements in the urine.

Hypokalemic alkalosis results from loss of potassium in the urine. Large quantities of calcium may also be excreted. The drug may produce allergic skin eruptions and eosinophilia. Streptomycin and viomycin both produce ototoxicity but may be used together if the dose of viomycin does not exceed 4 gms per week and frequent audiometric testing is performed.

Kanamycin

Kanamycin is employed in the combination with the other secondary agents to delay the development of resistant organisms and is similar to streptomycin pharmacologically. This drug is not used often because prolonged treatment with effective doses results in auditory disturbance and renal damage. Organisms resistant to streptomycin may be sensitive to kanamycin, but kanamycin resistant organisms are resistant to streptomycin.

Capreomycin

Capreomycin is a new antibiotic obtained from a *Streptomyces* species. It demonstrates no cross-resistance with streptomycin. Limited clinical studies have shown that it is effective at a dose of 1 gm daily for 60 days, followed by 1 gm twice weekly. Transient azotemia and ototoxicity have developed in some patients treated with this drug. Capreomycin may be given in combination with PAS or INH. Its ultimate place in treatment will depend on future clinical trials and toxic side effects.

Rifampin

Rifampin is a semi-synthetic derivative of a *Streptomyces* produced antimicrobial, *rifamycin*. It is effective against *M. tuberculosis*. It is relatively nontoxic and does not show cross-resistance with other antituberculosis agents. It is readily absorbed after oral administration. Preliminary studies suggest it may be bacteriocidal in contrast to other agents which are primarily bacteriostatic. Its antimicrobial spectrum includes gram positive and gram negative bacterial as well as atypical microbacteria. Therapeutic doses approximately 450 to 600 mg per day. When tested in infected mice, the drug was superior to streptomycin, ethambutol, capreomycin, PAS, and ethionamide and, in equal dose, was comparable to INH. Clinical trials are now in progress.

In conclusion, the secondary drugs are utilized in those individuals infected with mycobacteria which, as a result of appropriate susceptibility tests, are shown to be resistant to the primary antituberculous drugs. These resistant organisms usually include "typical" *Mycobacterium tuberculosis* and so-called "unclassified" mycobacteria. The therapeutic regimen is always determined by the clinical course of the patient while on chemotherapy and the results of *in vitro* drug susceptibility tests.

Infection with "primary drug" resistant *Mycobacterium tuberculosis* may necessitate the use of up to five drugs concomitantly. Therapeutic response must be carefully balanced against undesirable side effects.

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Student
THESIS

German Medical Education

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Introduction

MEDICAL EDUCATION in Germany is currently in the midst of a period of critical self-assessment, experimentation and change. New solutions are being sought for the problems involved in equipping a physician to take his place in modern society, problems which Germany shares with other nations. Many of the difficulties being faced by medical education within the Federal Republic, however, are uniquely German, and solutions to these problems must be found if the country is once again to approach its past eminence in the biological and medical sciences.

The following discussion of medical education in Germany was written after the author had spent one year as an American exchange student studying medicine in a German university. A year is not a long time, and it would be presumptuous to claim to have gained a complete understanding of the institutions of an alien culture during that short period. No such claims are made by the author, and one should keep in mind the particular perspective from which he viewed German medical education. Further, in the paragraphs which follow many comparisons are made between the system of medical education in Germany and that of the United States. It is realized that such comparisons are not always "fair," but, unfortunately, all of us are limited by our backgrounds in such a way that it is easier to understand the unknown when it is compared with the known. It is hoped that, at the very least, the following discussion will serve to outline the present structure of German medical education for those unfamiliar with it, and also to explore the strengths and weaknesses of that structure.

The German University

An understanding of the German university system in general is necessary before medical education in particular can be discussed intelligently. German universities, although not as old as similar institutions in Italy, France and England, share an ancient and proud tradition. The oldest of these Central European universities were founded by secular rulers but were guided and sponsored by the church. With a few exceptions each institution taught subjects included within the four traditional faculties of theology, canon law, medicine and philosophy. Because of their relationship to the church, all universities, but particularly those in Luther's own land, were torn by the violent currents of the Reformation and the Counter Reformation. Many schools vanished completely, and those which remained really changed very little until the founding of the Berlin University in 1809. This event was of great importance in shaping the modern German university because the guiding principles of the university in Berlin, principles laid down by Wilhelm von Humbolt, still dominate higher education in the Federal Republic of Germany. As recently summarized by Professor Rolf Dahrendorf, a noted German educator, these principles are the independence of the faculty, academic

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Weinshilboum recently completed his internship at Massachusetts General Hospital, Boston.

freedom, and the unity of the research and teaching functions of a university. It should be pointed out that these phrases have somewhat different meanings within the context of the German system than they would have in the United States, and, therefore, each of them must be discussed further. There is one other important characteristic of the German universities which Professor Dahrendorf fails to mention and which is not based upon Humbolt's principles—a high degree of selectivity.

University students in Germany are a small, select group. There are very few students and even fewer universities. The Federal Republic of Germany is a nation of 59 million people, but within its borders there are just 18 universities and 8 institutes of technology. Only 6 per cent of the young people of college age begin study at universities in Germany, as compared with 40 per cent in the U. S. A. and 32 per cent in the U. S. S. R. Selection begins far below the college level, however. In 1960 only 15.3 per cent of all students studied at a *Gymnasium,* or college preparatory high school, as compared with 30.8 per cent in France, a nation which also has a highly selective system. In the same year 71 per cent of American students were enrolled in high school; however, American high schools are not at all comparable to the *Gymnasien* which are highly specialized institutions with the purpose of preparing brighter youngsters for the universities. These German "high schools" make no attempt to provide for the education and training of a broad cross section of the population as do American high schools.

Another characteristic of the German system is that the students who take advantage of higher education in the Federal Republic generally come from the upper socio-economic groups. Only a small number of students are the children of workers and farmers. Two per cent of university students come from farm families and 5.2 per cent from workers' families, while these two groups make up, respectively, 15 per cent and 49 per cent of the population. This state of affiairs may be traced back both to financial reasons and to a traditional belief that education is the privilege of only certain classes.

The high degree of selectivity of the German system offers many advantages. The small number of universities makes it possible for all schools to have similar standards, something which is not found in the United States. Pre-university training at the *Gymnasien* can be very intensive as there are fewer students, and they are all of higher than average ability. The average student beginning his study at a German university is probably better prepared than is his American counterpart. It should be pointed out, however, that it is dangerous to make comparisons between the "average" student in a selective system and the "average" student in an inclusive system such as that in the United States.

Unfortunately a highly selective system has its disadvantages too. As it operates in Germany, it tends to associate education with class and privilege. In a more practical sense, by only educating a small elite, it robs the nation of that great mass of educated, but not necessarily scholarly people who keep the wheels of a modern industrial society turning. Because of these problems ways are currently being sought to broaden the scope of all levels of German education.

Let us now turn our attention to "academic freedom," a term which has quite a different meaning within the context of German university education than it has in the United States. To a German student "academic freedom" means the freedom either to go to class or not to go; to continue his studies as long as he deems necessary without a time limit; to have few examinations outside of the major tests every year or two; in short, the freedom to control his course of study and his use of time as he sees fit. For those students who are highly motivated and who have special interests, this situation is ideal. They are free to pursue their interests to any lengths. The highly regimented American system could probably profit from a little "academic freedom." Unfortunately, the German system is too free for most of the students—who are like most American students. They need external motivation, and few indeed are the students who study nearly as hard as their constantly prodded American counterparts. No solid data are available, but one is left with the distinct impression that the educational advantage with which the German student enters the university is, in great measure, lost during the course of his stay there. Perhaps in partial confirmation of this impression is the fact that the trend today is toward less and less "academic freedom" for students. Even the traditional "freedom" of the professors has been threatened.

The "academic freedom" of the German professor lies at the heart of much of the current controversy concerning higher education in the Federal Republic. It is very difficult for an American to understand this controversy. In the United States we are accustomed to the departmental system, an organizational structure which, theoretically, is composed of co-equal members, each of whom has a special area of interest and expertise. The chairman is the administrative head of this organization of co-workers. A further point to be noted is that each department is subject to the control, ultimately by fiscal means, of a dean, president, chancellor etc. The situation is very different in Germany. There a professor must possess a *Lehrstuhl,* or lectureship, and there are very few of these, roughly as many as there are departmental chairs in the United States. To hold a *Lehrstuhl,*

however, means much more than to be the chairman of a department in this country. Although there are steps on the academic ladder below the rank of professor, the American concept of "co-workers" within a department is unknown. Each professor is a sovereign within his own realm, and, although most are benevolent despots, they are despots nonetheless. They are also almost completely independent. German universities have little of the administrative superstructure of American institutions. The *Rektor,* or president, is a ceremonial official elected from the ranks of the professors for a one-year term. He has little real power. The only possible source of control is a senate composed of professors, and the idea of professors regulating other "free" professors is almost inconceivable. The problems which are spawned by such an autonomous and self-perpetuating power structure are not difficult to imagine, but the devastating effect which this system has upon the initiative and creativity which are so vital to scientific research and the educational process are very difficult to appreciate unless one has had some contact with the system. Attempts by students and others interested in educational changes to represent all professors as malevolent reactionaries are unfair. The real "problem" with the professors is that they represent a group with a vested interest in the status quo, and, thus, they contribute in large part to the inertia of the present system in the face of demands for reform.

Research, long a strong point of German education, has particularly suffered as a result of the inflexibility of old institutions. Many young scientists become discouraged by the process of waiting for a scarce academic position to become vacant. These men either leave academic life or are driven abroad; especially to England and America where the department system offers more opportunity for advancement. Over 2,000 scientists and physicians left Germany between 1957 and 1961, and this rate has been maintained.

It thus becomes apparent that many of the sources of the past greatness of the German university—academic freedom, the autonomy of the faculty, selectivity—have in the course of time become sources of difficulty. It is hoped that the preceding survey of the present problems of higher education in Germany will make a discussion of the system of medical education found there more intelligible, for the medical schools only reflect in miniature the structure and the difficulties of the larger system of which they are a part.

Medical Education

A survey of the program of study for a medical student in Germany might be a convenient starting point for an examination of medical education. The 11 to 12 semesters which the medical student spends at the university are divided into several "steps" by important examinations. The first two semesters are spent studying what Americans would call pre-medical courses, such as botany, zoology, chemistry and physics. Introductory anatomy and histology are also taught. At the end of this time a cumulative examination, the *Vorphysikum,* must be passed. Three additional semesters are then spent studying anatomy, physiology, and biochemistry, approximately the subjects covered during the first year of medical school in the United States. At this point there is a second examination, the *Physikum.* After the *Physikum* come five to six "clinical" semesters. During this time a combination of pre-clinical subjects, such as pathology, pharmacology, and microbiology, are taken, together with the standard clinical subjects; medicine, surgery, pediatrics etc. The teaching methods and the organizational structure of the clinical years are little changed from those of the pre-clinical years. There are lectures over several different subjects each day, laboratories, and very little patient contact. The block system of the clinical years in American medical schools during which time only medicine, for example, is studied for several months at a time, is not used. A final all-inclusive examination, the *Staatsexamen,* awaits the students at the end of their time at the university.

After the *Staatsexamen* a student is not allowed to practice medicine until he has completed a two year period spent working in a hospital as an *Assistent*—a time compared by some to an American internship. This is the student's third practical contact with hospital life. During the *Vorphysikum* time, eight weeks must be spent doing orderly work in order to "acquaint the student with medical surroundings." Three months must also be spent in a hospital during the clinical years in a role which more or less approximates that of American students during their clinical clerkships. If a young physician wishes to enter academic life, he must return to the university some time after the *Staatsexamen* to do research and to write a dissertation.

A fact which must be kept in mind during any attempt to evaluate this educational process in practical terms is that medicine in Germany is one of the most overcrowded faculties in a badly overcrowded university system. There are too many students in this highly selective system because there are even fewer universities proportionally than there are students. Medicine is especially vulnerable due to the lack of a period of pre-medical study to thin out the number of potential young doctors (5,900 new students in 1962), and because of the absence of effective entrance requirements once a student enters the

university. From 1910 to 1963 the number of students in German universities rose from 30,458 to 206,494 while the number of universities increased only from 12 to 18. The medical student population soared 360 per cent during the same period. It has been estimated that 55 universities rather than the 18 available would have been needed in 1963 in order to have maintained the 1910 average of 107 medical students per class (approximately the present level in the United States). Although facilities have been expanded and new buildings have been constructed, it is obvious that severe crowding must be the result of such a disproportionate growth of student body size. To give only one example of the type of difficulty which is caused in part by the large number of students, during the winter semester of 1966-67 there were more than 100 students per cadaver in the woefully inadequate dissection room of the *Anatomisches Institut* of the University of Freiburg. It is not uncommon for students to arrive an hour early for a lecture and sit through a class in which they are not enrolled in order to insure themselves of a seat the following hour. Perhaps these few comments will serve to illustrate the severity of the crowding problem, a problem which hampers efforts at reform in many areas of medical education.

The greatest strength of German medical education is its emphasis upon theoretical knowledge, and its most important weakness is the near lack of practical experience. Even during the "clinical" training instruction is carried out almost entirely through lectures and laboratories. Many of the laboratories are excellent, but others are overcrowded, understaffed and poorly equipped by American standards. Little attempt is made to integrate laboratory sessions with lecture material. The one area in which medical education in the Federal Republic is most different from that in America, however, is referred to even in Germany as "bedside teaching." At the time of the *Staatsexamen,* a German medical student's contact with patients at the university has been limited to seeing patients presented before large lectures, to a rare physical examination in a clinic, and—if the student is at one of the universities which are reform minded—to clinical visits to the wards one or two hours each week with a staff man.

It must be pointed out that in many cases the three month "clinical clerkship" during the period of university training, combined with the two year "internship" after the *Staatsexamen* more than make up for any deficiencies in the practical application of theory from which the young doctor may suffer. However, the "internship," the first significant period of patient contact, is often spent in a small hospital where supervision and instruction are less than ideal, and it is conceivable that a German medical student might become a doctor without ever having been shown how to translate his theoretical knowledge of disease processes into practice.

In addition to the major problems of overcrowding and lack of practical education, problems which have been recognized by German medical educators and to which solutions are being sought, all to the other strengths and weaknesses of the university system as a whole are mirrored in medical education. Professors of medicine adhere strongly to the old image of the authoritarian German *Professor,* and there is no real relationship between teacher and student. Students are not encouraged to do independent research, and are often not even welcome in the laboratory. This is quite different from the situation in the United States where students are not just enticed, but are almost coerced into doing research. Oral examinations cover large amounts of material and are often spotty and subjective. Integrated instruction is unknown, and a student may hear lectures on, for example, neuroanatomy, and then have his neuroanatomy laboratory two to three semesters later. All of these difficulties help to make the student's life considerably less convenient and, at times, less stimulating than it might otherwise be. The student is compensated, however. He is rarely tested, and for most students this means that they study neither as hard nor as steadily as American medical students. School only lasts seven months a year, an agreeable situation in many ways, but also an inefficient use of time and facilities.

It is hoped that the picture of medical education in Germany which emerges from this sketchy critical summary is that of a system which is still strong and capable of producing fine physicians and scholars, but a system which is currently going through a difficult period of adjustment. Adjustment is perhaps the most appropriate word, for a means is being sought to preserve that which is still useful from a tradition which produced one of the most fruitful periods in the history of medical science, while at the same time adapting this tradition to the needs and problems of the present. Many "reforms" and "changes" have been proposed, and it might be well to examine these proposals next.

Proposed "Reforms"

There have been nearly as many proposals for reform put forward as there are medical educators in Germany. There is a Tübingen reform, a Hamburg program, a new Ulm system, and even a Swiss reform. All of these plans center about a few major propositions, with the differences being variations in emphasis. The "key" proposals which are at the cen-

ter of the debate may be summarized as follows: (1) Some means must be found to limit the number of medical students; (2) At least a part of the traditional "academic freedom" of medical students will have to be sacrificed; (3) The hierarchical organizational structure of the university institutes and clinics will have to be altered; and (4) The medical curriculum must be changed in such a way that more time will be available for practical "bedside teaching" and patient contact. Even more basic than these propositions, of course, are the questions of possible reform of the university system in general and of the entire educational structure below the university level. These are questions which will be touched upon only peripherally in this discussion.

It is paradoxical that a limitation of the number of students in the medical faculty should be necessary within the confines of the highly selective German university system, but such a limitation is probably needed considering the inadequacy of existing facilities. Some authors even go so far as to say that most of the current problems of medical education can be traced to overcrowding. Although this is undoubtedly an oversimplification, many problems could be made manageable if the number of students were reduced. Strict admission requirements such as those which exist in the United States or in the Scandinavian countries under a newly adopted plan would be difficult to enforce within the German system with its tradition of freedom of choice of the subject studied at the university. However, German universities have already taken the first steps in this direction by the use of the controversial *Numerous clausus* which imposes some restrictions upon admission to medical school. They are also no less inventive than their American counterparts in finding ways to quickly reduce an excessive number of students in a given field.

A stricter regimentation of students with more examinations, tighter enrollment policies, and shorter vacations is one educational reform about which many students are not overly enthusiastic. However, it is also a rather painless change for those in positions of power, and may well be put into effect in many German universities in the near future. The Ulm plan, to be discussed more fully later, includes just such limitations of the traditional "academic freedom" of students, including regular examinations and shorter vacations.

One alteration in the traditional method of German medical education which is presently being tried in many universities is an increase in practical experience at the bedside. It is hoped that such experience will stimulate the student's interest while building his judgment, and will also create a closer relationship between staff and students. The major change put into effect in Tübingen and Hamburg is just such an increase in practical clinical work. The Ulm plan also involves more bedside instruction. In Tübingen groups of eight to twelve students are taken onto the wards for two hours per day each afternoon for one or two weeks per semester. In Hamburg similar groups of students are given instruction in the hospital one afternoon each week. These are small beginnings in the expansion of practical clinical teaching, but beginnings nevertheless. A more ambitious plan is the program at the new medical school in Ulm. There a block system of instruction has been adopted which includes a large number of hours spent at the bedside. The greatest difficulty with such programs is that they require a large number of instructors—more than are available. This problem is closely tied to the problems of limitation of student admission to medical school and of the organization of university medicine.

It is in the area of organizational structure that the Ulm plan makes its greatest break with tradition. A departmental structure is used with a system of multiple *Lehrstühle*. The old hierarchial *Direktor* system is specifically altered to provide for an administrative chairman with several co-equal section leaders working with and under him. Such a structure opens up more academic positions and could eventually serve to provide the additional instructors needed to make teaching on the wards practical on a large scale. Further, it is hoped that such an organizational change will create a free atmosphere which will be more inviting to young scholars and more stimulating to creative research.

The first tentative steps have also been taken in the area of reform of university education in general. Both the universities of Munich and of Freiburg have experimented with multiple *Lehrstühle* systems, and the Culture Ministry of the state of Hessen has even proposed that the *Rektoren* of the four universities in that state be elected for four year terms and be given a degree of power. This proposal immediately met the unanimous opposition of the professorial senates of all four schools. The students of the German universities made their feelings concerning educational reform known, when, as part of an organized movement known simply as *Aktion 1. Juli,* over 50,000 of the 280,000 university students in the Federal Republic demonstrated peacefully on July 1, 1965, to bring attention to the *Bildungsnotstand*—literally the "educational emergency." The discussion of education has even been extended to include elementary and secondary schooling and ways in which to attempt, in Professor Dahrendorf's words, "to realize the equality of educational oppor-

tunity for every citizen which is guaranteed to him by the constitution." It is not intended to expand a discussion of medical education into these areas, but it is clear that the universities in the Federal Republic of Germany are indeed in the midst of a period of change, and that the system of education which has been described above will be much changed within the coming years.

Conclusion

It would be very simple, and equally presumptuous, to propose the adoption of the American system of medical education in Germany. Certainly it is a great temptation to regard our way as the right way and any different approach as wrong, without regard for the differences in social needs and cultural pressures which have led to the evolution of the institutions being criticized. Undoubtedly some of the criticism leveled at German medical education in the preceding discussion has not been entirely fair, even though an effort has been made to deal only with objections to the system which have been raised within the Federal Republic itself. No quick and easy solutions to the problems which admittedly exist within German medical education have been offered because none exist—just as no easy solutions exist for the difficulties which are presently facing medical education in America. The preceding survey is intended only as a sketch of the present structure and possible future directions of one system of medical education. If, in the process, it also helps us to gain insight into some of the strengths and weaknesses of our own system it will have been more than successful.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

IS A SILENT KILLER LOOSE IN YOUR HOME?

A silent killer may be loose in your house.

The deadly criminal is carbon monoxide—CO—a colorless, odorless, tasteless gas produced every time a carbon-containing material burns.

A leaflet from the American Medical Association reports that CO combines with blood 200 times more easily than oxygen. If you breathe air containing a normal amount of oxygen and a moderate amount of carbon monoxide, your blood will be starved for oxygen. When blood cannot supply oxygen to your brain, permanent brain damage or death may result.

Dangerous quantities of CO usually accumulate when a cool, slow fire burns in limited air. Since you can't see, smell, or taste it, the gas is hard to detect except by your symptoms—drowsiness, headache, tightness across the forehead, confusion, nausea, and muscular weakness. CO poisoning may confuse you so that you cannot reach fresh air to relieve the symptoms and prevent serious injury.

To prevent a carbon monoxide attack in your home—

- Have all heating systems checked annually for operating efficiency. Make sure that vents, pipes, flues and chimneys are tight.
- Make certain that your heating plant is not starved for air.
- Be sure that all heating devices designed for venting are properly vented to the outside.
- Provide additional fresh air for charcoal grills and hibachis used indoors.
- Never tamper with ducts or vents of a heating device to get more heat out of it.
- Be sure that heating devices have been tested by a reputable firm. Follow the manufacturer's recommendations for installation and use.
- When changing types of fuel, ask a qualified serviceman to adjust all appliances involved.
- Don't close your fireplace damper until you are certain the fire is out.
- Be sure that your garage is sealed from the house. Never run the car in a closed garage.—*AMA Health and Safety Tips*

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HAPPY TO ASSIST YOU

Cancer Page

Patient History

The patient was a 29-year-old, white female, Gravida 4, Para 3. Her last pregnancy had occurred five years prior to her present illness. She presented complaining of vaginal bleeding and a vaginal discharge. Pelvic examination was felt to be compatible with a Stage II carcinoma of the cervix. No attempt was made to substantiate this diagnosis either cytologically or histologically prior to initiating therapy. A simple total hysterectomy was performed and revealed adenocarcinoma of the cervix. Postoperative x-ray therapy was given and a recto-vaginal fistula developed. Death occurred 10 months after surgery.

Committee Comment

Intracavitary radium in conjunction with external radiation or a radical hysterectomy and pelvic lymphadenectomy are both acceptable methods of dealing with early Stage II carcinomas of the cervix. A simple total hysterectomy is absolutely contraindicated and even when followed with postoperative radiation, significantly reduces the patient's chance for survival.

Conclusion

Inadequate initial therapy.

No definite diagnosis was made before undertaking therapy, though it could have been done by a simple biopsy.

—Committee for Control of Cancer

The President's Message

DEAR DOCTOR:

Satisfactory emergency medical care implies the prompt evaluation and treatment of an ill or injured patient by a qualified physician who has access to adequate treatment facilities. In Kansas this involves the staffing of the hospital emergency rooms of our 157 general acute care hospitals, the availability of house call making physicians, and the care furnished in rural areas.



As the Medical Society studies our present patterns of patient care I suggest we pause to salute the thin front line of practitioners who are now working a sixty-hour plus week and yet manage to service the emergency rooms and make house calls with our present system or "non-system" as the instance may be. Visualize the chaos if the physicians now rendering emergency care worked a forty-hour week which seems to be popular in occupations outside of our profession.

Nor let us forget our physicians over age sixty-five blessed with the experience that only time in practice can endow, their children educated, their demands much less, a nest egg accumulated, and literally encouraged to seek retirement by compulsory social security at sixty-five. Those I know continue to practice with the sole motivation being an obligation to their patients in need. When I have met them in the emergency room in the middle of a cold winter night, I have admiringly contrasted them to their retired next-door neighbors of their same vintage who spend their winters in Florida or Arizona.

Until we devise improved patterns of care not yet on the drawing board, let us give credit to those who carry the present burden of emergency calls in addition to their routinely crowded schedules.

Sincerely,

J. P. Morgan

President



Editorial COMMENT

Society Commissions

Since the formation of the commission system for committee activities by the House of Delegates a few years ago, a marked increase in committee activity has been noted. This is especially apparent during the current year.

The five commissions consist of 18 members each, plus a chairman appointed by the president. They meet at least twice annually. The fall meeting was held on October 6, at which time 78 from a potential of 95 members were present. This in itself testifies to the interest members have in the activities of their Society.

During the fall meeting, and in fact, long before this, projects were assigned and committees appointed to carry them out. Already many of the committees have met and are well on their way toward implementing new programs. With no attempt to complete the story, the following few examples are indicative of the high degree of committee activity currently underway.

The Committee on Membership is now in the process of writing revisions to the By-Laws whereby a new "At-Large Component Society" may be created to enable a potential of some 500 physicians to affiliate with the Kansas Medical Society. This subject will be presented to the House of Delegates next May.

The Committee on Blue Shield Study, authorized by the House of Delegates last May, has already examined a vast quantity of resource material and has divided its effort into subcommittees. Each of these has met. This monumental task may be impossible to complete in one year, but it is certain that the committee will present to the House of Delegates a surprising and highly enlightening interim report.

A special committee on the Future Patient Care in Kansas has been appointed by the president. This committee has held two meetings and is well on its way toward one of the most far-reaching programs this Society has adopted in many years. Its objective is to improve patient care in the areas of availability, quality and cost. Recognizing health manpower to be in short supply and aware of the public demand for increased health services, this committee is proposing methods to be presented to the medical profession and to the public whereby efficiency in the delivery of health care can be improved. Among projects under immediate consideration, which will shortly be announced to the Society, are improvements in the emergency services at hospitals, including means for 24-hour care in rural areas.

The Committee on Comprehensive Health Care urgently requests physicians in all areas of the state to actively participate in regional planning councils. This program might become one of the most significant additions to the health care picture of the century.

Many other activities of equal import might be cited. It has long been known that the Society progresses in direct proportion to committee activity. On that basis this will be a memorable year.

NOTICE TO KMS MEMBERS

The Committee on History requests contributions on the medical history of the communities in which you practice.

Names are important and anecdotes are suitable; also projects in which MDs have been active, especially regarding their civic or public health activities, or both; also any unusual hobbies or collections.

Send all contributions to the Committee on History, Kansas Medical Society, 315 West 4th Street, Topeka, Kansas 66603.

Report of Council

Summary of Meeting Held October 6, 1968

A meeting of the Council was held on Sunday, October 6, 1968, at the Ramada Inn in Topeka, beginning at 11:00 a.m.

Present were J. L. Morgan, President, F. T. Collins, G. F. Gsell, C. M. Lessenden, Jr., J. C. Mitchell, L. R. Pyle, W. J. Reals, Leland Speer, E. D. Yoder; *Commission Chairmen:* C. C. Conard, H. T. Gray, K. L. Graham, S. C. McCrae, and W. R. Roy; *Councilors:* D. L. Berger, V. E. Brown, R. F. Conard, R. H. Hill, R. W. Hughes, M. R. Knapp, J. G. Lee, Jr., R. R. Melton, W. G. Rinehard, Alex Scott, E. T. Siler, M. O. Steffen, and F. P. Wolff. Also present were L. E. Becker, J. N. Blank, H. L. Bogan, G. E. Burket, Jr., T. P. Butcher, W. M. Cole, J. F. Cornely, Hugh Dierker, C. C. Drevets, G. W. Fields, A. A. Fink, R. C. Knappenberger, L. E. Leigh, G. D. Marshall, W. E. McAllaster, J. A. McClure, J. H. A. Peck, P. M. Platten, R. C. Polson, D. V. Preheim, L. W. Reynolds, J. A. Segerson, E. F. Steichen, T. F. Taylor, J. W. Travis, J. D. Walker and H. E. Watts.

Also present were Mr. Ed Martin, Immediate Past President, and Mr. Dan Harper, President of KU-SAMA; two preceptors, Mr. Jim Lies and Mr. Copaning; Mr. A. M. Edwards, American Medical Association; Mrs. Martha Hunt, Executive Secretary, Wyandotte County Medical Society; Mr. Ray E. Selbach, Executive Secretary, Shawnee County Medical Society; Mr. R. G. Swenson and Mr. O. E. Ebel.

Dr. Morgan called the meeting to order and expressed his gratitude to the physicians for giving up their time in service to the Society.

Dr. Yoder, Secretary, presented the minutes of the last Council meeting, which were approved and adopted by the Council.

Dr. Morgan stated that the American Medical Association had sent plaques to the Society office for the seven Kansas physicians who recently donated three months of service in Viet Nam under the AMA's Volunteer Physicians for Viet Nam program. These plaques will be mailed to the physicians, and their names will be listed in the JOURNAL.

The President then announced that there was one physician vacancy on the Blue Cross Board, and because of the reduction of the total number of physicians on the board, only one of two eligible incumbents could be considered. Upon a motion made and seconded, Dr. Guy W. Cramer, Parsons, was nominated and elected to the board.

Dr. Lessenden, Treasurer, presented the annual budget and read a letter from the American Medical Association stating that the AMA dues would remain at $70 for 1969. Dr. Lessenden pointed out that for several years Society expenses have slightly exceeded income, but since there was a considerable reserve, he recommended the reserves be reduced for at least one more year and made the motion that the dues remain at $50, which was seconded and adopted. The motion was also made and seconded that the Treasurer's report and budget be accepted.

The president then introduced Mr. Ed Martin, Past President, and Mr. Dan Harper, President of KU-SAMA, who reported on the activities of their organization and expressed their appreciation to the Society and its Commission on Education.

Dr. Jack Walker, associate dean of the University of Kansas School of Medicine, reported that the medical school is interested in beginning a program of organ transplantation. The school is preparing to apply for a grant under the Federal Department of Public Health and one essential component to such an application is the endorsement of the project by the medical society involved. The motion was made, seconded, and carried that the Kansas Medical Society approve the development of a program for organ transplantation and dialysis at the K.U. Medical Center.

Dr. Morgan stated that the president of the Society appoints the chairman of the KaMPAC Board, and expressed his desire to have Dr. Norton L. Francis continue in this capacity for another year. The Council unanimously endorsed the appointment of Dr. Francis.

In the absence of Dr. Francis, Dr. Robert Knapp reported on KaMPAC, stating that at this time there were 535 paid KaMPAC members, the largest ever in Kansas.

Mr. Swenson reported on the newly formed Health Careers Council. He stated that there are 32 organizations and 12 individual members belonging to this council and that he was elected president. They are proposing the preparation of a loose-leaf handbook on health careers with each member organization preparing its own material. These books will be distributed to all student councilors in Kansas schools and the cost of their preparation will be paid for by contributions from the member organizations. The motion was made and seconded that the Society contribute $500 for one year to the Health Careers Council. This motion carried.

Dr. Morgan expressed his appreciation for the work of the Committee on Relations with the Bar Association and the success of the joint conference held last year. The House of Delegates voted to hold such conferences every other year; however, the committee is recommending that a conference on legal topics be held primarily for physicians sometime this winter.

Dr. Gsell, chairman of the new Committee on Future Patient Care in Kansas stated that the committee has selected areas needing attention and is now in the process of giving priorities to these. They plan to hold meetings with representatives from a variety of organizations in an attempt to learn what the public wants in the way of health care. A survey will also be made among the physicians. He requested the members of the Council to submit any suggestions they might have to improve the work of this committee.

Reports were given by the chairmen of the commissions. The following recommendations were approved by the Council.

Commission for Health Services—S. C. McCrae, M.D., Chairman

1. Endorsed the request for a revision of the Coroner Law to increase the fees for coroner's services in rural areas.

2. Approved the recommendation to change the legal definition of drunkenness by amending the law to lower the blood alcohol level to .10.

Commission for Scientific Study—H. T. Gray, M.D., Chairman

1. Approved the recommendation that legislative action be taken to place a Ph.D. and a Doctor of Medicine specializing in otolaryngology on the board under the newly passed law affecting the sale of hearing aids.

2. Approved the renaming of the Committee on Control of Tuberculosis to the Committee on the Control of Chronic Respiratory Diseases.

3. Adopted the request that the Healing Arts Act be amended to add wherever the words "physical illness" are mentioned, the words " . . . mental illness."

4. Approved the recommendation that a committee be formed to study the feasibility, possibility and advisability of certifying all paramedical personnel under the Healing Arts Board.

Commission for Society Organization—C. C. Conard, M.D., Chairman

Dr. Conard reported on several items under study by his commission:

1. The possibility of revising the By-Laws and creating a new category of membership, to be entitled "Members-at-Large," to be voted directly into the Kansas Medical Society without going through a county society. The eligibility for such membership would be limited to physicians not in private practice and only to those employed full time. A resolution will be prepared for the House of Delegates.

2. The commission will recommend an amendment to the By-Laws to eliminate the category entitled, "Hardship."

3. The Committee on Ethics expects to present guidelines for county societies and for the state society.

4. Dr. Conard reported the recommendations of the State Meeting Improvement Committee, which would shorten the annual session and provide the House of Delegates with better information on resolutions. He moved that the new format be adopted a year from next May at the Wichita meeting. After discussion, a motion was made and seconded that this question be tabled until the next meeting of the Council. Motion carried.

Commission for Sociology and Economics—K. L. Graham, M.D., Chairman

1. Approved the request that the Tyler Agency of Wichita be reinstated as a purveyor of health insurance on the basis approved by the Society.

2. Dr. Graham reported that the Committee on Industrial Relations is negotiating with Workmen's Compensation and has succeeded in eliminating the fee schedule for payment on a usual and customary basis. Except for the present, they will pay a maximum of $5 a point on the 1966 schedule, which is an improvement over the previous schedule.

3. A special committee met with the Kansas Health Insurance Council and because of difficulties encountered regarding usual and customary fees, they recommend that review of claims submitted by commercial insurance should be done by the local society instead of the state.

4. The committee working on the revision of the Relative Value Studies has learned that the California Society will soon have available an in-depth revision of their schedule. The commission believes it would be a wasted effort to proceed in Kansas independent of the California work, and requested approval of the Council to permit the committee to wait until the California study is available, even though this will make it impossible to have the Kansas changes ready for the House of Delegates. This request was approved by the Council.

6. A motion was made, seconded and carried that the Council appropriate the sum of $500 to the Committee on Blue Shield Study, with which this committee will select legal counsel to interpret certain contracts and regulations of which Kansas Blue Shield is a party.

Dr. Morgan again requested the councilors to

write letters to the doctors in their districts. Copies of the letters may be submitted to the executive office for duplicating.

Dr. F. T. Collins, Medical Advisor to Selective Service, announced that there will soon be another physician draft call and asked the cooperation of the councilors in submitting their recommendations upon facts of the draftee's medical necessity to the community.

Before adjourning the meeting, Dr. Morgan announced that the next Council meeting will be held in January.

RESOLUTION ON PODIATRY

(The following resolution was adopted by mail vote after a full report was made to the Council by a special committee which met independently and with a committee of Podiatrists.)

WHEREAS, Podiatrists are legally entitled to their usual and customary fees for professional services rendered under Titles XVIII and XIX; and

WHEREAS, Podiatrists have expressed their desire to assume such obligations to Blue Shield as may be required of Cooperating Physicians (as for example, Doctors of Dental Surgery have assumed); therefore be it

Resolved, That the Kansas Medical Society will not oppose contractural agreements between Blue Shield and the Podiatrists of Kansas PROVIDED that such agreement places them in a relationship to Blue Shield similar to Dentists apart from participating physicians, whereby payment to Podiatrists will be determined without reference to charges made by Doctors of Medicine and whereby the medical profession will not review podiatry claims for charges, medical necessity, or for quality of care rendered; and be it further

Resolved, That this resolution, when it receives 18 affirmative votes, shall be adopted and thereupon be submitted to the Executive Committee of Blue Shield.

RECOGNITION FOR VOLUNTEER SERVICE IN VIET NAM

The Kansas Medical Society expresses its appreciation to the following physicians who voluntarily contributed three months of service to the people of South Viet Nam.

Moheb A. Hallaba, M.D., Winfield
Robert O. Brown, M.D., Atchison
Isle Heilbrunn, M.D., Wadsworth
Cline Hensley, M.D., Wichita
Earl C. Hutchins, M.D., Wichita
Nels M. Strandjord, M.D., Kansas City
Ross L. Jewell, M.D., Coffeyville

A Certificate of Humanitarian Service, "In recognition of the meritorious service he performed for the medical profession, the United States Government and the people of South Viet Nam by treating the ill and injured during his medical mission under the AMA's Volunteer Physicians for Viet Nam," has been presented by the American Medical Association to each of the physicians who participated in the program.

(The following brief report of his experiences as a Volunteer Physician for Viet Nam was received from Dr. Robert O. Brown of Atchison, and will be of interest to many.—Editor)

Having given some thought to other short term missionary projects which didn't materialize, I heard personal accounts of the VPVN (Volunteer Physicians for Viet Nam) program and read a barrage of news items which prompted me during the post-Christmas lull to apply to the VPVN program. Was quite impressed with the 1,2,3, orderliness, had little problem in making arrangements to be gone; the undue credit given me for my dedication (?), a bit embarrassing. Had a good briefing in Chicago and the flight over was great and well scheduled as was our staff briefing in Saigon. Have the feeling that communication between our directors in Saigon and the various areas was poor, but tolerable. I came prepared to suffer a bit, but hit a good spot with air conditioned room—beach in walking distance—a vehicle at our disposal, PX and Club privileges! Plague, TB, malaria including cerebral, large spleens, septicemias, worms of all varieties and ascites, not always diagnosable, also CA of the stomach were prevalent; unsegregated wards—no sheets or mattresses, many relatives who would patiently squat on the bed for hours restraining for IV's.

Almost got to the stage of treating first and diagnosing later. For a while wasn't sure whether the empty bed meant a relative taken home to die or a runaway! Supply of drugs and instruments were adequate and the laboratory or other sources provided me with fairly adequate diagnostic help. The x-rays improved as I gradually learned to read them better. Working through an interpreter with a class of people strange to me seemed insurmountable at first, but as my sign language improved I found that they—the personnel—could understand considerable English and I could recognize some French medical terms and drugs. I believe most of the provincial hospitals are so-called charity type which didn't contribute to the cleanliness of the situation. There was little supervision here, which

(Continued on page 555)



Personalities—IN KANSAS MEDICINE

John L. Reese, Tucson, Arizona, is now associated with **H. P. Jones** and **G. E. Manahan** in their surgical practice in Lawrence, according to an announcement received from Dr. Jones. Dr. Reese is a graduate of the University of Kansas School of Medicine and recently completed two years of service with the Air Force.

Among those attending the annual meeting of the American Academy of General Practice held in Las Vegas in September were **Dr.** and **Mrs. Kenneth Lohmeyer** and **Dr.** and **Mrs. Charles Underwood,** of Emporia; **Millard E. Schulz,** Russell; **Dr.** and **Mrs. J. Allen Howell,** Wellington; and **Dr.** and **Mrs. Edward E. Long,** Humboldt.

Evalyn S. Gendel, assistant director of the Division of Maternal and Child Health, Kansas State Department of Health, discussed "Schools, Sex, and Society," at the annual meeting of the Essex County Medical Society Auxiliary held in East Orange, New Jersey, in October.

Kansas physicians re-elected to active membership in the American Academy of General Practice include **Edgar H. Beahm,** Independence; **Guy I. Akers,** Fort Scott; **Paul L. Beiderwell,** Belleville; **Robert W. Blackburn** and **Royal A. Barker,** both of Council Grove; **John N. Blank,** Hutchinson; **James L. Barber,** Augusta; and **Hugh G. Bayles,** Fredonia.

Dr. and **Mrs. L. L. Huntley,** Washington, attended the Southwest Medical Clinical Society meeting in Kansas City in October.

Donald J. Smith, Overland Park, has succeeded **Don R. Miller,** Kansas City, as president of the KU Medical Alumni Association. **John O. Yulich,** Kansas City, was elected second vice president, and **Robert W. Brown,** KUMC, was re-appointed secretary-treasurer of the association.

The Salina Civic Orchestra Society has elected **Wendell K. Nickell** as president for the 1968-69 season. **Marvin Gunn** was chosen vice president by the board of directors of the society.

Roscoe Morton, Arkansas City, has been appointed by Governor Robert Docking to the Hospital Advisory Council to the Kansas State Board of Health.

Dr. and **Mrs. Wesley Hall,** Pittsburg, attended the Christian Medical Society Conference in San Antonio, Texas, in September.

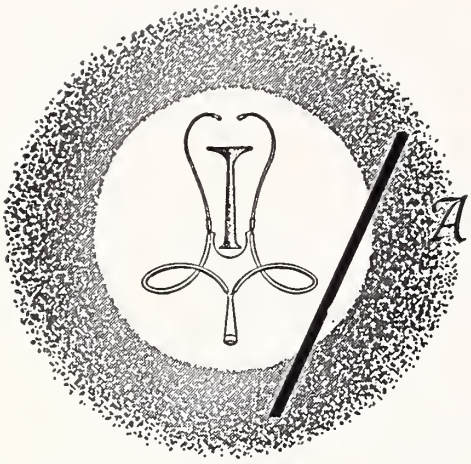
Winston K. Mebust, University of Kansas Medical Center, presented a paper at the 37th annual meeting of the American Academy of Pediatrics held in Chicago in mid-October.

The community of Kensington held an open house in honor of **Buford Hartman,** who retired in October after 34 years of medical service to Kensington and the surrounding area.

Dwight Lawson, Topeka, was installed as president of the Kansas Heart Association at the annual meeting held in Hutchinson in September. Dr. Lawson succeeds **David Lukens** of Hutchinson, 1967-68 president of the association.

After 39 years of medical practice in Fort Scott, **John T. Lewis** announced his retirement in August.

Dr. and **Mrs. Edmer Beebe,** Olathe, left in October for a world cruise and a three-month tour at a missionary hospital in Bangkok, Thailand. Dr. Beebe retired from practice last July.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the **Doctor's Calendar.** ***Notice of the session is posted in advance to allow the physician time to make preparations.***

DECEMBER

Dec. 1 — 10th national conference on the Medical Aspects of Sports, AMA Committee on the Medical Aspects of Sports, Miami Beach. Write: Committee on the Medical Aspects of Sports, American Medical Association, 535 N. Dearborn, Chicago 60610.

Dec. 1 — American College of Nutrition, annual meeting, Hilton Plaza, Miami Beach. Write: American College of Nutrition, Suite 417, 420 Lexington Ave., New York, New York 10017.

Dec. 4-6 — Refresher course in Ophthalmology and Otolaryngology, presented by the Kansas City Society of Ophthalmology and Otolaryngology, Plaza Inn Motel, Kansas City, Missouri. Write: Samuel Kantor, M.D., Suite 428, Rockhill Medical Building, 6700 Troost, Kansas City, Missouri 64131.

Dec. 6 — American College of Physicians (Texas Regional), Dallas. Write: Ralph R. Tompsett, M.D., 3500 Gaston Ave., Dallas.

Dec. 7-12 — American Academy of Dermatology, annual meeting, Palmer House, Chicago. Write: The American Academy of Dermatology, 911 Seneca St., Seattle, Washington 98101.

JANUARY

Jan. 5-11 — Five-day seminar for physicians in industry, The Menninger Foundation, Topeka. Write: Division of Industrial Mental Health, The Menninger Foundation, Box 829, Topeka 66601.

Jan. 7-10 — Journal of Pediatrics Lectures, Denver Children's Hospital, Denver. Leo Stern, M.D., Asst. Professor of Pediatrics, McGill University, will present a series of lectures on cardiopulmonary problems of the newborn. Write: Joseph Butterfield, M.D., Denver Children's Hospital, 19th Ave. at Downing, Denver 80218.

Jan. 16-18 — American College of Physicians (Colorado Regional), The Broadmoor, Colorado Springs. Write: William A. H. Rettberg, M.D., 4200 E. 9th Ave., Denver.

POSTGRADUATE EDUCATION

Nov. 22-23 — ***M.D. Day (Columbia, Mo.)***

Dec. 9-10 — ***Gynecology and Obstetrics***

Jan. 29 — ***The Handicapped Child (Great Bend)***

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

Jan. 12 — *Crisis Recognition and Treatment*

Jan. 13-18 — *General Practice Review*

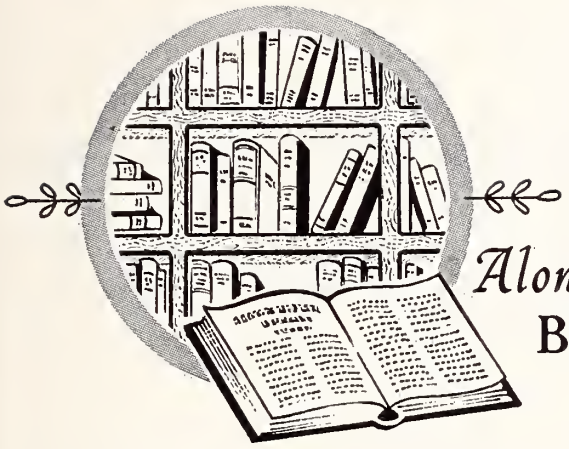
For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

Nov. 21-22 — *Central Nervous System as a Mirror of Systemic Disease*

Jan. 17-18 — *Basic Review of Electrocardiography*

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Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISTIONS

American Dietetic Association. Lydia J. Roberts award essays; a compilation of essays. Chicago, 1968.

American Psychiatric Association. Joint Information Service. Fifteen indices; an aid in reviewing state and local mental health and hospital program. 1968 ed. Washington, 1968.

Batterman, Robert C. Pain relief with analgesic agents, by Robert C. Batterman. Chicago, Year Book Medical Publishers, 1968.

Ciba Foundation Symposium: Growth of the nervous system, edited by G. E. W. Wolstenholme and Maeve O'Connor. Boston, Little, Brown and Company, 1968.

Grant, Vernon W. Great abnormals; the pathological genius of Kafka, Van Gogh, Strindberg, and Poe. 1st ed. New York, Hawthorn Books, 1968.

Group for the Advancement of Psychiatry. Committee on Adolescence. Normal adolescence; its dynamics and impact. New York, Scribner, 1968.

Hall, Charles A. The blood in disease, by Charles A. Hall. Philadelphia, Lippincott, 1968.

Harrison, Tinsley Randolph. Principles and problems of ischemic heart disease, by Tinsley Randolph Harrison and T. Joseph Reeves. Chicago, Year Book Medical Publishers, 1968.

Hurlock, Elizabeth Bergner. Developmental psychology, by Elizabeth B. Hurlock. 3d ed. New York, McGraw-Hill, 1968.

Jackson, Donald De Avila, compiler. Communication, family and marriage, edited by Don D. Jackson. Palo Alto, Calif., Science and Behavior Books, 1968.

Jackson, Donald De Avila, compiler. Therapy, communication, and change, edited by Don D. Jackson. Palo Alto, Calif., Science and Behavior Books, 1968.

Jessor, Richard. Society, personality, and defiant behavior: a study of a tri-ethnic community, by Richard Jessor, Theodore D. Graves, Robert C. Hanson and Shirley L. Jessor. New York, Holt, Rinehart and Winston, Inc., 1968.

Kerckhoff, Alan C. The June bug: a study of hysterical contagion, by Alan C. Kerckhoff and Kurt W. Back. New York, Appleton, 1968.

Kett, Joseph F. The formation of the American medical profession; the role of institutions, by Joseph F. Kett. New Haven, Yale University Press, 1968.

Lopate, Carol. Women in medicine. Baltimore, Published for the Josiah Macy, Jr. Foundation by the Johns Hopkins Press, 1968.

Loraine, John Alexander. Fertility and contraception in the human female, by John A. Loraine and E. Trevor Bell; foreword by Sir Dugald Baird. Baltimore, Williams & Wilkins, 1968.

Marmor, Judd, ed. Modern psychoanalysis; new directions and perspectives, edited by Judd Marmor. New York, Basic Books, Inc., 1968.

Money, John William. Sex errors of the body; dilemmas, education, counseling. Baltimore, Johns Hopkins Press, 1968.

Moore, Francis D. Carcinoma of the breast; a decade of new results with old concepts, by Francis D. Moore and Steven I. Woodrow, Mennelaos A. Aliapoulios, and Richard E. Wilson. 2d ed. Boston, Little, Brown, 1968.

Raush, Harold L. The halfway house movement; a search for sanity, by Harold L. Raush. New York, Appleton-Century-Crofts, 1968.

Roberts, Nancy. David. Text by Nancy Roberts, photographs by Bruce Roberts. Richmond, Va., John Knox Press, 1968.

Senn, Milton J. E. Problems in child behavior and development, by Milton J. E. Senn and Albert J. Solnit. Philadelphia, Lea & Febiger, 1968.

Smart, John Jamieson Carswell. Between science and philosophy; an introduction to the philosophy of science, by J. J. C. Smart. New York, Random House, 1968.



Book REVIEWS

THE SIDE OF THE ANGELS, by John Rowan Wilson. Doubleday & Company, Inc., New York, 1968. 348 pages. $5.95.

Deep in central Siberia, a large scientific center was busily engaged in a research project. Some of the scientists were preoccupied with findings in the field of molecular biology. This well planned, systematic and diligent task produced such tremendous results that even the West learned of the work of this research center.

One of the scientists involved came to the brink of a new discovery: the creation of new microorganisms, viruses, with the help of artificial cells. The importance of this discovery could be compared to that of atomic fission.

From a military standpoint, new viruses for which medicine had no antidotes, could be used for annihilating great numbers of people. The scientist who lifted this curtain toward the unknown was so shaken by possible results—and quite especially by the fact that this new knowledge could end up in the hands of a totalitarian government—that he could no longer control himself, and committed suicide.

Just before his death, he handed a letter to his friend, a colleague and assistant who was also an outstanding scientist. The letter contained information of the discovery and a wish that this knowledge be used for the good of humanity. The second scientist decided to join a scientific enterprise in the West and there to research further the new theory.

Unfortunately, even in the West it was not possible to pursue scientific projects of this magnitude independently. Everything was under the influence of specialized interests, be it the government or big private concerns with whom commercial considerations came first.

The book is written with a great deal of knowledge and comprehension of the circumstances on both sides of the iron curtain. When the work and life in a Siberian scientific center is described, one is astounded by how exact and factual this description is, and one involuntarily wonders whether, perhaps, some scientist really did cross the border and hand his diary to the author of this book!

Since the characters are intellectuals, all conversations, contemplations and actions are conducted on a high plane. This book should be of great interest to a learned reader.

Psychological moment takes precedence in this book and the dramatism is created by emotions, rather than physical violence, murder, arson, etc. Therefore, in the opinion of this reviewer, this book can be counted among good examples of literary creativity. No wonder one reads it with unceasing interest from the beginning to the end.—*P.L.*

HANDBOOK OF FRACTURES, by Edgar Lee Ralston. C. V. Mosby Company, St. Louis, 1967. 299 pages. $10.75.

This is an excellent book for the understanding and treatment of the routine fracture. It is primarily designed for teaching medical students. It would also be a good book for those not in the orthopedic field who are interested in fracture care. The book is not designed primarily for the orthopedic surgeon.

I feel this book would be a good addition to the library, particularly for the emergency room physician handling some of the fracture problems he encounters there, and to render emergency care of the fracture. —*R.R.P.*

BURNS, SHOCK AND PLASMA VOLUME REGULATION, by Carl A. Moyer and Harvey R. Butcher. C. V. Mosby Company, St. Louis, 1967. 428 pages illustrated. $18.50.

Burns, Shock and Plasma Volume Regulation is a book which all physicians should find both interest-

(Continued on page 555)

Obituaries

ROOSEVELT LEONARD, M.D.

Dr. Roosevelt Leonard, 68, Lyons, died September 9, 1968, at Lyons District Hospital.

Dr. Leonard was born on August 10, 1900, at Lyons. He received his doctor of medicine degree from Northwestern University in 1930. After completing his internship and residency in St. Louis, he returned to Lyons to begin his practice. Dr. Leonard was a member of the First United Methodist Church, Masonic Lodge, and other fraternal and medical organizations.

Survivors include his wife and a son.

WALTER STEPHENSON, M.D.

Dr. Walter Stephenson, 80, died at his home in Norton on October 5, 1968.

Born in Abilene on April 19, 1888, Dr. Stephenson graduated from the University of Kansas School of Medicine in 1924. He began his medical practice in Edmond and moved to Norton in 1926. Dr. Stephenson was interested in the affairs of his community and was an active member of several civic organizations. He had been county coroner for many years, resigning from that office only recently.

Dr. Stephenson is survived by his wife and two daughters.

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in August, 1968 and 1967

Diseases	*August*			*January-August, Inclusive*		
	1968	*1967*	*5-Year Median 1964-1968*	*1968*	*1967*	*5-Year Median 1964-1968*
Amebiasis	6	1	1	11	12	11
Aseptic meningitis	1	—	1	5	1	3
Brucellosis	—	—	—	2	—	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	1	7	7	6	12	12
Encephalitis, post-infect.	1	—	*	9	2	*
Gonorrhea	577	307	264	2,856	2,616	2,132
Hepatitis, infectious	27	25	25	269	136	269
Measles (Rubeola)	—	*	*	8	*	*
Meningococcal meningitis	3	—	—	24	7	13
Mumps	1	*	*	705	*	*
Pertussis	1	2	1	4	7	11
Poliomyelitis	—	1	—	—	2	—
Rheumatic fever	—	—	—	3	2	2
Rubella (German Measles)	1	*	*	116	*	*
Salmonellosis	42	15	42	193	136	182
Scarlet fever	1	—	—	28	52	59
Shigellosis	22	2	11	62	24	62
Streptococcal infections	89	296	89	1,698	1,999	1,712
Syphilis	158	112	109	817	792	792
Tinea capitis	7	3	4	37	44	44
Tuberculosis	24	28	24	154	159	168
Tularemia	2	1	—	3	11	3
Typhoid fever	—	—	—	1	1	1

* Statistics not available.

INFLUENZA REAPPRAISAL, VACCINE RECOMMENDATIONS 1968-69

In July 1968, an outbreak of influenza A2 was reported from Hong Kong. Estimates of the overall attack rate have varied from 15 to 30 per cent. Although strains of influenza virus from this outbreak cross-react to some extent with antibodies from previous A2 strains, they do show marked antigenic changes.

During the winter of 1967-68, a major epidemic of A2 influenza occurred in the United States. Forty-six states, including Kansas, reported outbreaks of influenza-like illness. However, low levels of antibodies against the strain causing the Hong Kong outbreak can be demonstrated in the sera of persons who had documented influenza during the 1967-68 A2 epidemic.

The continued change in antigenic characteristics of influenza viruses isolated over the years is well recognized. Although major antigenic shifts occur infrequently, minor variations occur almost yearly. Protection through vaccination depends both upon the antigenic similarity of the vaccine strain to the virus prevalent in the community and upon the amount of antigen administered. Accordingly, the bivalent and polyvalent influenza vaccines currently available are expected to provide only limited protection against the A2 variant reported from Hong Kong.

There does not yet appear to be a threat of an immediate A2 influenza epidemic in the United States. However, persons have been entering the United States from the Far East continuously since the onset of the Hong Kong epidemic.

Recommendations for use of influenza vaccine remain essentially the same as previously published. The currently-available bivalent or polyvalent vaccine should be given to persons at highest risk of mortality or severe complications as a result of influenza. This

includes all persons in the older age groups, especially those over 65, and persons of all ages who suffer from chronic debilitating diseases, including cardiovascular, pulmonary, renal, or metabolic disorders.

The pharmaceutical industry has been requested to proceed with the development and manufacture of a monovalent vaccine incorporating the new strains, which might be expected to provide better protection. It is recommended that as the new vaccine becomes available, it also should be used only for the high risk groups, as it will initially be in short supply.

Experiences in VPVN Program

(Continued from page 548)

had both advantages and disadvantages. Visits to other hospitals, orphanages, etc. . . . rounded out my experience very satisfyingly. Transferred to the Pediatrics ward the last two weeks and found the same concerns and rewards as from parents at home. An abandoned cleft palate and lip child was brought in and before I could make arrangements an attending mother was breast feeding and coddling it! Had some association with the VN (Viet Nam) doctors who, for the most part, were too busy for the charity hospital, but I felt they were absorbing a bit of stimulus for diagnostic approach to medicine; the nurses showed more evidence of this rubbing-off process, especially in developing an empathy for poor patients.

My association with four other VPVN's has been a source of increased knowledge which will greatly improve my patient care at home. So the recreational facilities—beach, etc. . . . were well used. I grew in medical knowledge. My curiosity of the Viet Nam situation was somewhat satisfied although still confused as to its future—read three pertinent books, and the travel "around the world" is well captured in mind, film, and tape so the experience will be a source of satisfaction for a long time. The war—like traffic—is all around but never of very much immediate concern and largely discounted as a source of danger.

Just can't think of an easier way to take a break from active private practice for 60 days!

Announcements

(Continued from page 550)

Jan. 24 *Diagnostic Significance of Acute and Chronic Gastrointestinal Blood Loss*

For further information write The Department of Postgraduate Education, University of Nebraska Medical Center, Omaha, Nebraska.

Book Reviews

(Continued from page 552)

ing and enlightening. The last two-thirds of the text is largely concerning the complications from burns and treatment of these complications. There are seven chapters in this section, but only the last three chapters are directed to the treatment of burn shock, burn wound and an assessment of therapy. The initial four chapters are informative and entertaining for even those who do not engage in treatment of major burns as they discuss vaporizational heat loss, the function of human skin, the bacteriology and bacteriostasis of burns and the history of burn therapy.

The initial third of the book reviews blood volume regulation and shock secondary to hemorrhagic and dehydrational states. They have again included an interesting review of the history of shock therapy and many of the physiologic factors involved.

All physicians might enjoy and benefit from this text and need not lay it aside because the title starts with "Burns."—*D.K.M.*

News is anything that makes a women say, "For heaven's sake!"—Ed Howe

One's eyes are what one is; one's mouth, what one becomes.—Galsworthy

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

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Snyder Clinic
Winfield, Kansas 67156

Ned B. Gorrell, M.D.
1509 Main
Parsons, Kansas 67357

Roy W. Hartley, M.D.
711 N. Norton
Norton, Kansas 67654

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Kansas State University
Manhattan, Kansas 66502

Jon B. Holman, M.D.
8600 W. 95th Street
Overland Park, Kansas 66212

J. Kent Mueller, M.D.
9500 Mission Road
Shawnee Mission, Kansas 66206

Elmer D. Peffly, M.D.
327 Maple Street
Chetopa, Kansas 67336

Gerald L. O'Connell, M.D.
7830 State Line
Prairie Village, Kansas 66208

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The Kansas Medical Society—1968-1969

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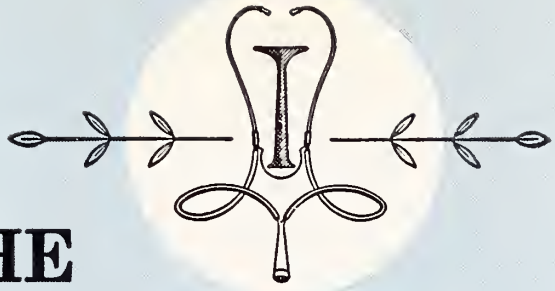
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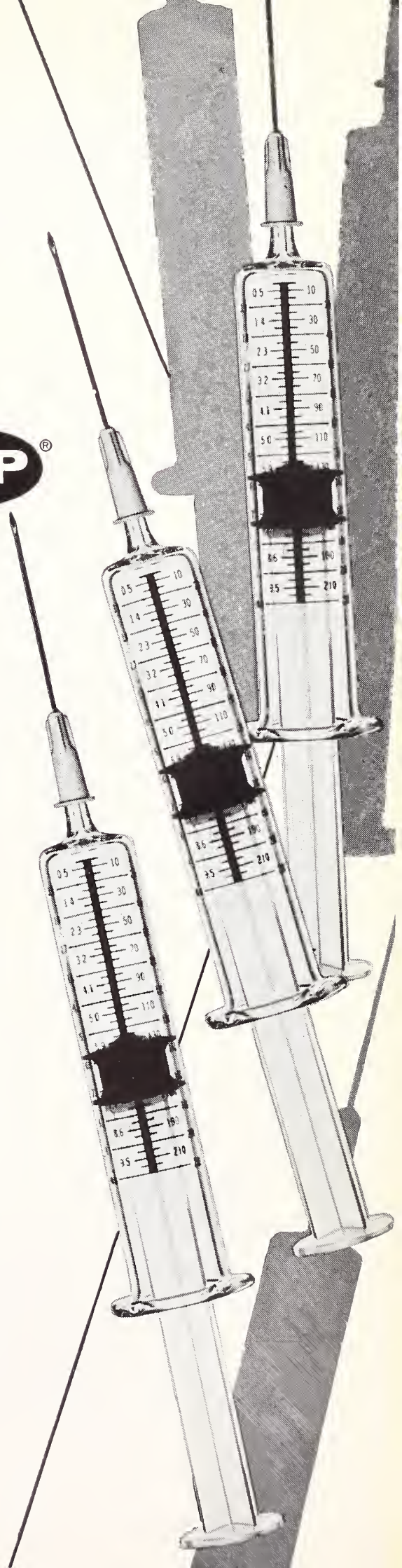
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Volume LXIX, Number 12—December, 1968

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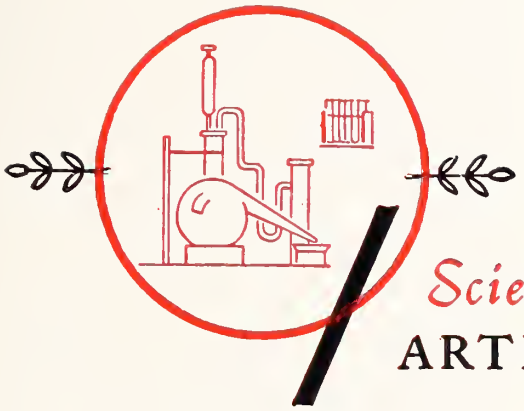
Special Issue

The Wichita Clinic

We are pleased to present this special issue of the JOURNAL, and wish to express our gratitude to the physicians of the Wichita Clinic who prepared the articles published here.

A special note of thanks goes to Dr. Kenneth E. Stanley, Jr. for his efforts in soliciting the papers and assembling them for the JOURNAL.

—Editor



Juvenile Nasopharyngeal Angiofibroma

Awareness in Anesthesia of the Juvenile Nasopharyngeal Angiofibroma

ROBERT H. ROBINSON, M.D. *and* **CHARLES HAAS, M.D.,*** *Wichita*

The nasopharyngeal juvenile angiofibroma is an uncommon, benign tumor which occurs in the nasopharynx of pubescent males. It can be unexpectedly encountered and cause extraordinary hemorrhage. When the anesthesiologist anticipates nasal intubation or instrumentation of the nasopharynx his awareness of its possible presence should be considered. Prior to anesthesia, a careful history in teenage boys should be sought regarding nasal obstruction and sudden nasal hemorrhage. If the patient requires surgery, all skills and facilities for handling this tumor should be available.

Introduction

THE JUVENILE NASOPHARYNGEAL ANGIOFIBROMA can cause sudden, severe hemorrhage during nasal intubation and surgery. The hemorrhage and potential airway obstruction can be life-threatening. Our experiences with the four cases presented and the literature reviewed in this paper emphasizes the anesthesiologist's need for awareness of this tumor and its diagnosis, unexpected nature, complications and anesthetic management.

Case Reports

The unexpected and unanticipated nature of this tumor can be illustrated by the following four cases wherein the admitting diagnosis was:

1. Nasal bleeding following an automobile accident.
2. Polyp of the left nasal passage.
3. Swelling of the side of the face (diagnosis made preoperatively by the otolaryngologist).
4. Routine tonsillectomy and adenoidectomy.

CASE NO. 1

A 16-year-old white male was admitted from the county jail to the hospital with a chief complaint of severe nasal bleeding for two hours. Four days prior to admission, the patient was involved in an automobile accident and he had been bleeding intermittently and occasionally profusely since that time.

On being admitted to the hospital, the patient was taken to surgery and under general intratracheal anesthesia, hemorrhage was controlled by anterior nasal packing. As the procedure was started, it was noted

* Work performed at St. Francis Hospital and the Wichita Clinic, Wichita, Kansas.

by the otolaryngologist, upon lifting the soft palate, that a tumor was present (probably a juvenile nasopharyngeal angiofibroma). The patient was returned to surgery two days later for the purpose of taking a small biopsy from the tumor mass. Although four units of blood were held in readiness and profuse hemorrhage was encountered immediately after the biopsy was taken, the bleeding was controlled and only 500 ccs of blood had to be administered—blood loss estimate 800 ccs. Again, the nasopharynx was packed with vaseline packing. The specimen measured 1 x 2 x 3 mm. The diagnosis was nasopharyngeal angiofibroma. Two days later the anterior packs were removed. Bleeding resulted and it was necessary to repack the nose. The patient was transfused 1000 cc of blood. It was noted "this tumor bled on the slightest manipulation."

The patient was re-admitted one month later with epistaxis. At this time, the area was packed again and it was observed that the tumor was still very large. The patient was re-admitted two months later for implantation of radon seeds. Although brisk bleeding occurred, it was controlled by pressure. The tumor was noted as "pale, pink, hard, firm." The patient was admitted July 18, 1963, and three quarters millicurie radon seeds were again implanted. Diagnosis: nasopharyngeal angiofibroma.

Case No. 2

A 16-year-old white male, 5 feet 8 inches, 140 pounds, was admitted to the hospital with a diagnosis of polyp of the left nostril and surgery was scheduled. This was the second admission to the hospital for this patient. The previous admission had been for nasal discharge, stuffiness of the nose, symptoms of "plugged-up" Eustachian tube, and some hearing disturbance.

The physical examination revealed a polyp in the left nostril known for three weeks. This was his only symptom and he had been having difficulty breathing through his nose.

Nasal polypectomy was attempted and from the surgery report, "it was found to be a little more blue and a little thicker than the usual nasal polyp." An attempt was made to grasp the lesion with a forceps, and as part of it was removed it bled profusely. Additional hemorrhage required it to be packed. Further attempts at removal simply created more hemorrhage. The operation was abandoned, the nose was packed and the patient returned to his room. Diagnosis: nasopharyngeal angiofibroma.

Case No. 3

A 16-year-old, 115 pound (52 kg.), white male with a known diagnosis of juvenile nasopharyngeal angiofibroma, was admitted to the hospital with nasal hemorrhage. Multiple hemorrhages during the past year were controlled by postnasal packing. Preoperative medication consisted of Demerol 75 mgm, Scopolamine 0.4 mgm, intramuscular. Induction was accomplished with 350 mgm of sodium pentothal, followed by 5 mgm of Syncurine and a number 34 French cuffed oral endotracheal tube was inserted into the trachea. A tracheostomy was performed, the endotracheal tube removed and a new sterile cuffed short endotracheal tube was inserted into the stoma of the tracheostomy. Anesthesia was maintained with halothane, nitrous oxide and oxygen. A hypotensive agent, Pentolinium, was administered totalling 16.0 mgm in divided doses. The Von Recklinghausen's oscillometer was used for monitoring the blood pressure. The patient was placed in a head-up tilt or reverse Trendelenburg position.

This patient seemed to be especially refractory to the hypotensive agent. It was difficult to reduce his blood pressure (systolic) below 65 mm Hg. At that point the surgeon decided to proceed. With the first snaring of the broadbased pedunculated mass, approximately 300 ccs of blood were lost and the systolic pressure dropped 45 mm Hg. The anesthesia was lightened and the pressure returned to approximately 60 mm Hg where efforts were made to maintain it during the remainder of the procedure. There was further fluctuation in blood pressure, between 60 and 75 mm Hg systolic and higher concentrations of fluothane were used to maintain the lower blood pressure. Three units of blood were administered during the procedure and the fourth was added as the patient was being removed to the recovery room. The patient was returned to the recovery room in good condition. No further bleeding was encountered. The packs were removed two days later and he was discharged from the hospital on the fifth postoperative day. Pathological diagnosis: nasopharyngeal angiofibroma.

Case No. 4

A 10-year-old, white male was admitted to the hospital for tonsillectomy and adenoidectomy. His chief complaint was being a constant mouth breather. About six months previously the patient developed severe nasal bleeding from the right side of the nose. This required considerable therapy to get it under control. Following this the patient began to have constant nasal discharge from the right side of the nose. He gradually became unable to breathe through his nose at all.

Physical examination revealed a well developed, well nourished boy of ten years, weighing 100 pounds, who appeared larger than the usual ten-year-old. The mucous membranes and the turbinates were moderately swollen, the nasal pharynx was completely filled with adenoid-appearing tissue. Dermerol, 25 mgm, and Atropine, gr. 1/200, were given as preoperative medication. Anesthesia used were sodium pentothal and nitrous oxide oxygen.

From the surgeon's notes: "A hard, firm, tumor mass involving the right fossa of Rosenmuller was found after the adenoid tissue was removed. A piece was removed for diagnosis and the bleeding, although severe, was controlled with cotton packs. Sections taken from the submitted biopsy showed an irregular nodule beneath the mucosa which is composed of densely arranged, small to medium sized blood vessels. Within a few of the vessels were intact erythrocytes." Pathological diagnosis: nasopharyngeal angiofibroma.

Diagnosis

Martin[1] states that the histories in his 29 cases

revealed the correct diagnosis was seldom made by the physician first seeing the patient. The juvenile nasopharyngeal angiofibroma may be completely occult and present first by severe hemorrhage. Progressive nasal obstruction with discharge is the usual presenting history and is usually followed by recurrent, severe hemorrhage. Visual presentation of the tumor in one or both nostrils, bulging of the nose, cheek or palate and exophthalmus (frog face deformity) are less frequent objective signs. Most lesions to be differentiated from the juvenile nasopharyngeal angiofibroma include choanal polyps which are usually multiple bilateral, pedunculated and of a different gross appearance, and lymphoid tissue which is soft and seldom hemorrhagic. Consultation with an otolaryngologist may yield the diagnosis on gross appearance alone.

Pathology

The juvenile nasopharyngeal angiofibroma has been described as a rare or uncommon tumor of adolescent boys and young men.[1, 2] Occurrence in females has been reported,[3, 4] but their number is small and validity of these cases has been doubted.[5] This highly vascular tumor arises in the nasopharynx from the lateral wall above the opening of the Eustachian tube. These tumors are rounded or slightly nodular and are covered with mucous membrane. Grossly, they are reddish or fleshy in color and have a firm-to-hard consistency. Nasopharyngeal fibromas are not malignant, they never metastasize and do not infiltrate. However, they are highly destructive lesions because of their ability to cause pressure necrosis of bone and to send out processes of tumor tissue that may invade one or more nasal cavities and in turn the accessory sinuses. Microscopically, they consist of fibrous connective tissue and within the connective tissue there is a large number of vascular channels and some of these may resemble a cavernous hemangioma. Excellent further description of the pathology has been made by Sternberg.[6]

Treatment

Treatment of the juvenile nasopharyngeal angiofibroma is not standardized. It is doubtful that the tumor regresses spontaneously with maturity. Radon seeds or (external) radiation therapy with or without (type) hormonal therapy is often attempted before surgery in order to reduce the tumor's vascularity.

Anesthetic Techniques

The preoperative visit and assessment of the patient are important. Preoperative determination of the blood volume is a good base to guide transfusion therapy. Reassurance and explanation to the patient regarding the procedure can be helpful. Tracheostomies and considerable packing in the posterior nasal pharynx can be frightening to the patient when awakening from surgery. Instructing him about breathing, speaking and suctioning can insure a smoother postoperative period.

No standardized anesthetic approach to these patients has been shown to be advantageous. General oral endotracheal anesthesia with adequate premedication, barbituate or inhalation induction and the judicious use of muscle relaxants to aid intubation have proven adequate in most cases. Large, gauge #14 plastic, freely running intravenous inlets and large quantities of immediately available blood should be in readiness. Hypotensive and hypothermic anesthesia has been reported to be of benefit.[2, 7, 8] The personnel and equipment essential for tracheostomy should be at hand.

Discussion

The anesthesiologist today commonly carries out blind and visual nasal intubation of the larynx and esophagus and positioning of nasal oxygen catheters. Traumatization of the nasopharyngeal angiofibroma while trying to establish general nasotracheal anesthesia in a dental office, far removed from a blood bank could be nightmarish. It would seem that a definitive nasal history on all male adolescents prior to nasal instrumentation is vital. Prior nasal bleeding and obstruction should be alerting symptoms. When surgical removal of this tumor is attempted it should be under optimum circumstances. Pressman states that the degree of hemorrhage cannot be predicted on the basis of tumor size or other parameters. He recommends preparation for rapid, high volume transfusion. "I usually plan to have 20 units available."[7]

Patterson described a case in which 18 units of blood were infused. Erich[9] reported that biopsy alone can result in such serious hemorrhage that external carotid ligation and other emergency measures may be necessary. Martin[10] described a patient who nearly succumbed from hemorrhage on several occasions. Kremen[11] described a patient in whom all attempts to control bleeding over a three day period utilizing 2500 ccs of whole blood were unsuccessful. MacComb[12] lists one death from repeated hemorrhage and one case of cardiac arrest during the surgery due to inability to replace blood rapidly. Preoperative anticipation, diagnosis, and adequate preparation can lessen the complications attributable to this neoplasm and may be life-saving.

Despite the somewhat alarmist attitude toward this tumor, the reported mortality is not high as contrasted with the morbidity.

(Continued on page 565)

Angina Pectoris

The Clinical Diagnosis of Coronary Artery Disease

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We recognize atherosclerotic coronary artery disease when it progresses to the severity to cause coronary heart disease, usually manifest as angina pectoris or myocardial infarction. Disease of the coronary arteries exists in young people and may be clinically silent. The patient with chest pain is the typical problem of diagnosis.

We all have our own criteria, conscious or subconscious, that we use in making the diagnosis of coronary artery disease. The clenched fist sign is attributed to Samuel Levine. The patient describes his chest pain using the clenched fist. The patient with the "classical" story offers little problem in diagnosis and has been estimated to represent 80 per cent of the patients. Long-term follow-up studies of patients, pathologic studies, and more recently selective coronary cine arteriography have made possible correlations and comparisons with various methods of diagnosis. These have provided the basis for numerous reports which have appeared recently in the literature.

Certainly the history is important to make the diagnosis, but when four hundred patients seen for chest pain were evaluated carefully and followed for a period of time to add certainty to the diagnosis, it was found that there could not be clear separation of the group with chest pain due to coronary artery disease from the group with chest pain of other causes. The quality of the chest pain or discomfort, the location and radiation of the pain, and the precipitating factors were common to patients in both groups. It was concluded that history alone was not enough.

The presence or absence of the various well-known risk factors for coronary atherosclerosis may lead us toward the diagnosis, but certainly we need more than an accumulation of risk factors.

Physical examination in the patient during angina pectoris is not often described, but may be of help. Of course, the immobility, usually standing or sitting rather than supine is well known. Many patients try straightening the spine or shoulders in an attempt to obtain relief. Pallor and cold sweat may be present. The pulse may reveal only mild tachycardia or there may be diminished pulse strength. Careful blood pressure and pulse recordings have been recorded in spontaneous angina and revealed that usually the pulse and blood pressure were elevated. Fourth heart sound type or atrial gallops and third heart sound type or ventricular gallop rhythms have been described in angina. One author related observing a gallop rhythm in 16 of 24 patients who had angina produced by exercise on a treadmill. With rest and nitroglycerin, the angina resolved, the heart rate decreased, and the gallop disappeared. Paradoxical splitting of the second sound may occur in coronary heart disease. There is a delay in the aortic component of the second sound and with inspiration the pulmonic component is also delayed so that the second sound is single in inspiration rather than in expiration. There has been reported a mid or late systolic murmur appearing during angina pectoris and this was felt to be due to transient papillary muscle dysfunction.

The chest x-ray may not be of great help in the diagnosis of coronary atherosclerosis, but detection of coronary calcification by image intensifier fluoroscopy may be of some help occasionally. Its presence may correlate better with age, however, than with symptomatic coronary atherosclerosis.

After the above steps, we usually turn to the electrocardiogram for help. Of course, strong evidence for myocardial infarction on the electrocardiogram or vectorcardiogram helps with the diagnosis of coronary artery disease, but there are a lot of minor abnormalities which do not help, and may in fact lead to the false diagnosis of coronary artery disease in a patient with other or no disease. We all now recognize many non-specific changes in the electrocardiogram due to drugs, electrolyte abnormalities, and other factors. Among these are electrocardiogram abnormalities attributable to the phenothiazines. These are described as characterized by a broadened, blunted, and frequently notched T wave and in more severe changes by a reversal of T wave polarity and RST segment abnormalities. Prominent U waves are also seen. Notched T waves have been shown to occur in young persons with central nervous system lesions. These are two examples of recently reported abnormalities which occur in the electrocardiogram and are not due to heart disease.

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It is well to remember the fasting, morning electrocardiogram when evaluating the patient with non-specific electrocardiographic abnormalities.

If one electrocardiogram is not helpful, or even worse is confusing, then we may get another electrocardiogram or a larger sample of the patient's electrocardiogram using the technique of continuous electrocardiogram monitoring developed by Holter. It is a tape recording electrocardiogram monitor. It records ten hours of the patient's electrocardiogram on slow moving magnetic tape. The playback is accomplished in ten minutes by superimposing the QRS complexes on an oscilloscope. In theory, it would be possible to evaluate a patient for transient RST and T wave abnormalities, but distortion of the ST segment and a post T wave dip occur and these are apparently due to the limited frequency response of the system.

Exercise electrocardiographic testing has long been a tool in the evaluation of patients with chest pain. Refinements in the interpretation as well as comparisons with long-term mortality studies, pathologic studies, and more recently selective coronary cine arteriograms have made its value and also its limitations better defined.

The value of a test may be stated in terms of numbers of false positives and numbers of false negatives. Master, on the basis of careful clinical evaluation and follow-up on a series of patients, felt he had three per cent false negatives, that is negative double Master's tests in individuals with coronary artery disease, and 3.8 per cent false positives. His most recent criteria are as follows. The depression of the RST segment of the ischemic (horizontal or downsloping) type of 0.5 mm or more is abnormal. The depression of only the first part of the RST segment, the so-called junctional segment depression, is difficult and its analysis is based on the duration of its depression below the isoelectric line. The X point is that point the ST segment crosses the isoelectric line. If the QX interval is 50 per cent or more of the total QT interval, then the depression is abnormal. If the QT interval itself is prolonged, then the junctional change is abnormal by that measurement, according to Dr. Master. He feels that other abnormalities such as altered QRS configuration, T wave changes, and arrhythmias seen in exercise electrocardiograms are virtually always associated with ischemic RST segment depression and therefore "for all intents and purposes, the ischemic type of RST depression still remains the test criterion of an abnormal response to the two-step test."

When these criteria were applied to a group of 100 patients with "classical" angina, 78 had ischemic RST changes and 22 had junctional changes. These junctional changes were abnormal by both QX/QT and QT ratios.

Other workers have correlated positive Master's tests with increased incidence of myocardial infarction, 15 per cent compared with 1.5 per cent in a control group in a ten-year study. Another long-term worker in the field of exercise EKG has quantitated the degree of RST segment abnormality. Any horizontal or downsloping depression is abnormal. The non-ischemic group of changes consist of either no change, T wave inversion, cardiac arrhythmias, conduction defects, and ST junction depression. These exercise tests were part of examinations for life insurance on 2,224 men. The mortality of the groups was compared to that of standard insured groups. The number of deaths was small, but was felt to indicate trends. There were 37 deaths in the ischemic group and 34 in the larger non-ischemic group due to coronary disease. The mortality of the ischemic group was eight times that of the non-ischemic group.

The mortality was proportional to the amount of ischemic ST segment depression; when it was 0.1 to 0.9 mm, the mortality was twice the non-ischemic group, and when 2 mm of ischemic depression was present there was 16 times higher mortality. An even higher mortality was found if the ST segment was downsloping. It was also noted that there was no mortality among 65 cases whose pre-exercise T wave abnormalities reversed polarity. In their evaluation, they could find no value to the QX/QT and QT ratios. Ischemic ST segment depression was felt to be the only valid evidence of coronary insufficiency. Another study to evaluate the QX/QT and QT ratios was done with 150 young college and nursing students between 17 and 21 years of age. They were evaluated with exercise EKG after their resting EKG's were normal and were found to have no clinical evidence of heart disease. The double two-step test was performed and the EKG was monitored during exercise. Eighty-six of the group, or 57.7 per cent, showed a depression of the ST junction. Of these 86, 24 (28 per cent) showed either an abnormal QX/QT or an abnormal QT ratio. These would be equivocal tests. Nine of the 86 with ST junction depression had both QX/QT and QT ratio abnormalities and therefore had abnormal tests according to the criteria used by Dr. Master. It is difficult to measure the QX/QT and QT ratios and this adds to the problem of interpreting. Master has suggested that inspection rather than actual measurement of the QX/QT is enough.

The method of obtaining the electrocardiographic tracing and the timing of the tracing has been re-evaluated. In the standard Master's test, leads V_4,

V_5, V_6, and lead 2 are recorded immediately after exercise, in two minutes, and then six minutes after the end of exercise. Leads 1, AVL and AVF have been added by others. Recording the electrocardiogram during exercise by standard electrodes and standard placement of leads is difficult because of exercise-induced wandering of the baseline. Development of radiotelemetry encouraged the monitoring of the electrocardiogram during exercise. The frequency response is important and may not be adequate to allow accurate interpretation of ischemic changes. Master evaluated recording the electrocardiogram continuously during exercise but used only one lead, a bipolar lead from V_5 position to the same position on the right side of the chest, V_{5r}. He found no advantage of telemetry over using a direct cable connection to the patient and no increased yield of positive results of monitoring during the exercise over post-exercise recording results. He noted that diagnostic changes most frequently occurred two minutes after exercise. He did note the possibility that recording additional leads during exercise might be of help.

The use of other bipolar leads was tried. Part of the early problem was difficulty in the electrodes and their attachment to the skin. Using alcohol or acetone to clean the skin and then taping an electrode firmly to the skin, which is not loose over underlying muscle or bone, is important. Any displacement of the electrode will result in baseline wander.

Sites of electrode placement are also important. A bipolar lead from the upper sternum to the V_5-V_6 position is easy to place, but has been felt to be subject to increased sensitivity to change in body position. A shift of the superior electrode from the upper sternum to the outer one-third of the right clavicle may decrease the amount of positional changes. Postural changes have also been noted with standard lead systems such as II, V_4 and V_5 as used by Bellet. He found that changes in the ST and T wave when assuming the upright position were more common in subjects with coronary artery disease, 18.5 per cent as compared with 4.1 per cent of a normal group. Others have found it more common in the normals. There was a shift of the QRS axis to the right, an increase in amplitude of the P wave, a shortening of the PR interval, ST segment depression and flattening or inverting of the T wave. T wave changes were more frequent. ST segment shift occurred in only ten per cent of those patients having postural change. This is another example of T wave changes on exercise test that are not indicative of an abnormal test.

Another method of recording the EKG during exercise without movement artifact has been described. Standard electrodes on the limbs are very subject to movement artifact. When the arm leads were moved to the infraclavicular fossa medial to the border of the deltoid muscle and 2 cm below the lower border of the clavicle, the resultant EKG's changed little. The left leg electrode is moved to the area between the costal margin and the crest of the ilium in the anterior axillary line. The chest leads are in standard positions. A long strip of elastic tape is routinely applied across the chest to elevate the pectoral skin and breast. This decreases the movement of the electrodes. The electrodes are taped firmly so as to avoid any sliding over the skin.

Using this system of electrodes, a later report by the same author admitted some difficulty with unstable baseline in a few patients, usually females or obese males. The exercise was accomplished in this later study on a bicycle ergometer or an exercise escalator. It was started at about the exercise level of the two-step test and was increased in graded increments. Exercise was stopped when any one of the following four things appeared: (1) anginal pain of the intensity of the usual daily episodes; (2) ischemic ST changes; (3) fatigue; (4) heart rate 90 per cent of predicted maximal for the subject's age. They used the criteria of 1 mm shift of the ST segment lasting for at least 0.08 seconds. They found that recording the electrocardiogram during exercise provided additional information in 33 of 56 positive reactors or 59 per cent, but was essential for interpretation in only 9 per cent.

The use of multiple leads was important. A significant number of exercise tests are positive in only one lead, approximately one-third. V_6 was most frequently the abnormal lead, but leads II, III, V_3, V_4, and V_5 were also found to occasionally be the only lead showing positive changes.

The level of exercise was graded in the study just mentioned. It was felt that the level of exercise for the Master's test was not adequate for some, so exercise to a certain heart rate was accomplished. In this case, it was to a level 90 per cent of the predicted maximum heart rate for the patient's age. Sixty-one per cent of the patients with angina had a positive exercise test with the double two-step level of exercise. With the higher levels of exercise, the positive results increased to 85 per cent. Other types of exercise have been used and the treadmill is used in multi-stage type of exercise. The patient accomplishes one level and then goes on to the next. If maximum or near-maximum exercise is not accomplished, some authors feel the exercise should be enough to increase the heart rate to 120 per minute; others have suggested 150 per minute.

The refinements then in exercise electrocardiogram testing have come with more critical interpretation

of the results, more monitoring, and higher levels of exercise. It is very apparent that there is a great difference in the results. Most workers have not felt as confident of their percentage false positives and percentage false negatives as has Dr. Master.

There have been several series reported where selective coronary cine arteriography has been compared with exercise electrocardiogram testing. The correlation has varied from excellent, even with correlation to the amount of ST segment shift seen, to bad correlation with false positive exercise tests in 30 per cent of a group without clinical angina and with normal selective coronary cine arteriograms. The same study showed that half a group with clinical angina and abnormal selective coronary cine arteriograms had a negative double Master's test. Most studies have shown good correlation. It is also clear that there is good correlation of selective coronary cine arteriograms with pathologic specimens. The severity of lesions seen on the cine has correlated well with the clinical diagnosis of angina, severe disease usually being seen.

The same studies have correlated other things with the cine coronary arteriography. Ballisto cardiography did not correlate well with abnormalities seen on arteriography. Procedures done in cardiac catheterization laboratories as a part of the catheterization of the coronary arteries may add useful information. Left ventricular cine angiograms have shown ventricular aneurysms and lesser degrees of localized poor contraction which may be areas of myocardial infarction. It is possible to get an idea of the function of the left ventricle by estimation of ventricular volume and contraction as seen on the cine angiogram. Analysis of cardiac performance by hemodynamic studies with measurement of pressure-time relationships and systolic time intervals which may be recorded externally may be correlated in future studies with selective coronary cine arteriograms. This will allow subsequent long-term follow-up and clinical correlation to ascertain their usefullness in the diagnosis and evaluation of coronary artery disease.

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Nasopharyngeal Angiofibroma

(Continued from page 561)

Summary

The juvenile nasopharyngeal angiofibroma is a relatively rare tumor of pubescent males which can cause sudden, unexpected and dramatic hemorrhage. A plea is made for a more exact or definitive history to be made on all adolescent boys who are about to have nasal instrumentation of any nature. Four cases have been presented which illustrate the unexpected nature of this tumor and one case using hypotensive technique is described.

DRUGS	
Demerol	Meperidine
Scopolamine	Hyoscine
Sodium Pentothal	Thiopentone
Syncurine	Decamethonium
Pentolinium	Ansolysin
Halothane	Fluothane

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Postpartum Pneumoperitoneum

Spontaneous Pneumoperitoneum Following Coitus

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SPONTANEOUS POSTPARTUM PNEUMOPERITONEUM has been described in several papers.[1–4] This benign condition usually occurred following knee-chest exercises. Recurrent episodes of pneumoperitoneum following the patient's bending over and for unknown reasons without preceding pregnancy were reported by Wright,[5] Fredrickson[6] and Britt *et al.*[7]

We wish to report the occurrence of spontaneous pneumoperitoneum following coitus at four weeks postpartum. We were unable to find a previously reported similar incident.

Case Report

Our 20-year-old patient was initially seen in the last trimester of her first pregnancy. She had always been in good health. Her delivery on November 20, 1964, and her postpartum course were uncomplicated except for a brief bout of gastroenteritis on December 8. Thereafter, she felt well until the night of December 17 when she reported by telephone the sudden onset of upper abdominal pain radiating to her right shoulder. The pain was aggravated by deep inspiration and in upright position. There was nausea but no emesis or other gastrointestinal symptoms. The situation was not thought alarming to the patient and her physician. She was examined the following morning. There was mild tenderness in the upper abdominal region without rigidity or rebound tenderness. Since this was the only abnormal finding no further diagnostic procedures appeared indicated. Symptomatic treatment brought no satisfactory relief and the patient was again seen on December 21. Specific questioning revealed that the initial pain on December 17 occurred approximately 30 minutes after the first coitus postpartum. The couple reported that during intercourse a noise was clearly audible "as if air entered the abdomen."

The physical examination revealed normal vital signs in a young lady who did not appear ill or in distress. Significant findings included tenderness to deep palpation in the epigastrium and left mid-abdomen, and the absence of rigidity, rebound tenderness, masses and organomegaly. Pelvic examination disclosed a normal postpartum cervix and uterus without evidence of laceration.

The laboratory studies included the following: Hematocrit—42 per cent, white blood count—5500/mm with 38 per cent neutrophiles, 60 per cent lymphocytes (normal appearing), and a normal urinalysis. The chest x-ray showed no evidence of cardiopulmonary disease but there was considerable free air under the diaphragm *(Figure 1)*. An upper gastrointestinal series with gastrografin was normal.

We have reported the occurrence of spontaneous postpartum pneumoperitoneum following coitus. Although several have reported this problem following knee-chest exercises we are unaware of similar occurrences following coitus. This is a benign condition and needs only symptomatic management.

Our patient refused hospitalization but at home her pain subsided on symptomatic medications by December 24. The remainder of her postpartum course was uneventful. On April 20, 1965, an IUCD (Lippes loop) was inserted for contraceptive purposes. Except for a brief period of uterine cramping following this, she remained well until May 16 when she had the sudden onset of upper abdominal and right shoulder pain. She described this as identical to the pain she had experienced on December 17, 1964. The pain was aggravated by deep breathing. She was seen in the emergency room two hours after the onset of pain. There were no other gastrointestinal symptoms or fever.

The positive physical findings included marked tenderness to palpation in the right upper abdomen. Even percussion over the liver was painful. The liver dullness was not increased. Although there was voluntary guarding, she had no rigidity or re-

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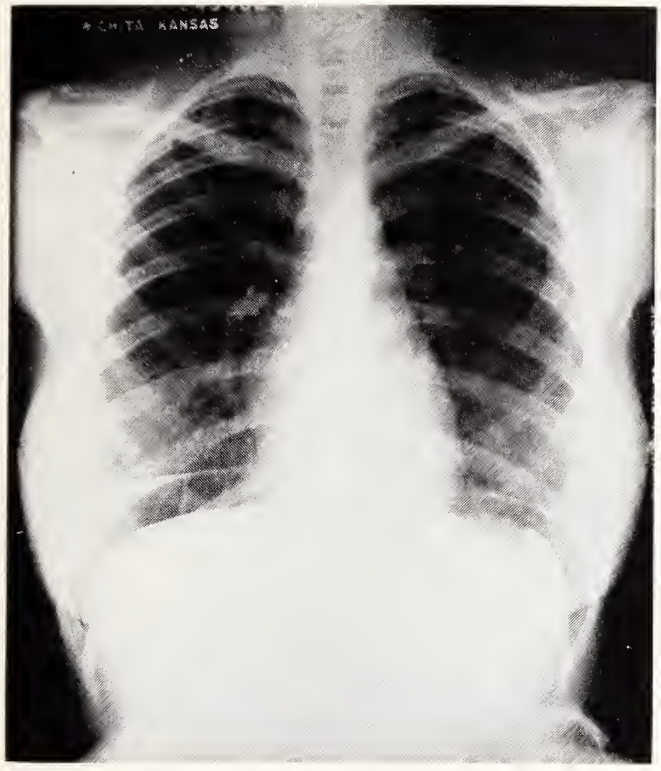


Figure 1

bound tenderness. X-rays taken in the emergency room did not show any free air under the diaphragms or any pathology in the chest.

The pain persisted and was accompanied by nausea and vomiting. She was hospitalized because of the unexplained symptoms on May 18. The following laboratory procedures were normal: Complete blood count, urinalysis, lactic dehydrogenase, serum glutamic pyruvic transaminase, alkaline phosphatase, bilirubin, amylase, urine culture. Sedimentation rates were 28 and 36 mm/hour (uncorrected). X-rays of the chest, abdomen, gallbladder, upper gastrointestinal tract and an intravenous pyelogram were normal.

She was afebrile, but the pain persisted. Because we suspected a subphrenic abscess, tetracycline therapy (one gram per day) was initiated on May 21. The pain and abdominal tenderness rapidly subsided over the next 48 hours. She was dismissed from the hospital and had no further symptoms.

Discussion

The occurrence of spontaneous pneumoperitoneum has been recognized for many decades. The causes of pneumoperitoneum can be classified as follows: (1) perforated viscus, (2) incidental to perforation of pulmonary emphysematous blebs into peritoneal cavity,[8] (3) pneumatosis cystoides intestinalis,[9] (4) purposeful, as in diagnostic or therapeutic pneumoperitoneum and following the Rubin test, (5) accidental, as misplaced thoracic needles, gastroscopy, etc., and (6) those in which air enters the peritoneal cavity spontaneously through the female genital tract. The latter group includes the occurrence postpartum from knee-chest exercises and our case during coitus. Others have described this occurrence without preceding pregnancy after bending over and forceful douching. Eisenmenger[10] determined that there could be as high as 90 mm (water) of negative pressure in the rectum resulting from the abdominal viscera falling cephalad while in the knee-chest position.

We suspect our patient had a fairly large amount of air in the peritoneal cavity as the x-ray four days after the induction of the pneumoperitoneum still showed approximately 5 cm of air under the diaphragm. Although our patient did not describe any unusual noises as the patient reported by Bean,[11] she seemed much aware of the air moving about in her abdomen as she changed position. The occurrence of a similar episode five months later was not fully explained. We believe a negative x-ray at two and twenty hours after the onset of pain excluded a recurrence of the spontaneous pneumoperitoneum. We could not exclude a subphrenic or subhepatic abscess although it would seem unusual to occur five months after the pneumoperitoneum. In view of the numerous case reports of postpartum pneumoperitoneum following knee-chest exercises, we would expect other similar occurrences of postcoital pneumoperitoneum in the postpartum state. We agree with other authors that this condition is not serious and should not warrant an exploratory laparotomy. The possibility of a perforated viscus, however, should always be ruled out by x-ray examination of the gastrointestinal tract.

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Hiccup

—*A Song for Singultus*

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Case Report

J. F. H. WAS A 76-YEAR-OLD Caucasian man admitted to the hospital March 28, 1967, and expired April 3, 1967. The chief complaint was hiccups day and night for three days.

Hypertension was stated to have been present since 1950. In 1958 the blood pressure was 180/130 and the heart was found to be enlarged on chest x-ray. In 1959 he was in an auto accident and thrown against the steering wheel, striking the left anterior chest wall. A fracture of the left 8th rib resulted.

In 1960 he was admitted to the hospital with symptoms of congestive heart failure. The heart was further enlarged on chest x-ray and the electrocardiogram revealed atrial fibrillation, left bundle branch block, and evidence of left ventricular hypertrophy. Ten days after admission an acute illness developed with temperature of 101F, flushed face, high right anterior chest pain, no cough, and the onset of persistent hiccuping. A complete blood count and urinalysis at this time were normal. The BUN was 20 mg per cent. Sputum culture revealed Neisseria species and non-hemolytic streptococci. Chest x-ray was unchanged. After six days of continuous hiccuping, the patient was given chlorpromazine. The hiccups stopped four days later and subsequently the chlorpromazine was discontinued. He was discharged on maintenance digitalis.

During May 1963, the patient spent three weeks in the hospital because of an exacerbation of heart failure. Hiccuping was not mentioned during that admission.

In December 1963, he was again admitted with congestive heart failure and treated with digitalis and diuretics. One week later hiccups began. The hiccups ceased two days later when combined treatment with chlorpromazine and breathing into a paper bag was used.

Little transpired till September 1966, when digitalis toxicity developed and the patient was again hospitalized. Urinalysis at this time revealed 1+ protein and pyuria. A urine culture grew *E. coli.* Hiccuping developed while in the hospital and was treated with chlorpromazine with relief. Subsequently the chlorpromazine was stopped and soon persistent hiccuping resumed. Treatment with a placebo was unavailing. Chlorpromazine was resumed and the hiccuping stopped. The patient was sent home on maintenance chlorpromazine.

He was re-hospitalized with heart failure in December 1966. As he had had no hiccups since the prior admission the chlorpromazine was stopped at the time of discharge.

Two days later persistent hiccuping developed. This was so severe it seriously troubled the patient's sleep.

A case of a man with troublesome hiccups is presented and this provides the text for a discourse, tongue in cheek, on this malady.

After a week of hiccuping he was again hospitalized. The urine again revealed 1+ protein and pyuria. The BUN was 29 mg per cent. Chlorpromazine was resumed with prompt disappearance of the hiccups.

The patient was followed as an outpatient. After several weeks an effort merely to reduce the chlorpromazine dosage resulted in re-appearance of hiccups until the previous dose was reinstated.

When seen eight days prior to the final admission he was noted to be sluggish, lethargic, ataxic, and to be drooling. Neurological examination was otherwise normal. The impression was chlorpromazine toxicity and the dose was reduced from his customary 25 mg q.i.d. to 25 mg t.i.d. Five days later persistent hiccuping developed, precipitating admission. In addition to chlorpromazine, he was taking digoxin, 0.25 mg b.i.d. and chlorothiazide, 500 mg daily.

Physical examination revealed a chronically ill-appearing elderly man with temperature, 97.0F.; pulse 98 and irregularly irregular; respiratory rate, 24; and blood pressure 120/90. The patient was oriented but his responses were slow. Continuous hiccuping was noted. The heart was enlarged with a moderately loud systolic ejection murmur audible along the left sternal border. A resting tremor was present which diminished with intention. Cog wheel rigidity of the extremities was present.

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Diagnoses at this time included chlorpromazine toxicity, hiccups, chronic pyelonephritis, and hypertensive heart disease with an enlarged heart, atrial fibrillation, and compensated congestive heart failure.

The hemoglobin was 15.6 grams per cent and the white count 12,300. The urine contained 3+ protein and innumerable white and red cells and bacteria. Fasting blood glucose was 112 mg per cent. The BUN was 55 and the creatinine 1.6 mg per cent. The sodium was 145, chloride 100, potassium, 3.1, and CO_2, 34 mEq per liter. Urine culture grew Enterobacter. Chest x-ray revealed an enlarged heart (predominantly left ventricular enlargement) and no evidence of active pleural or parenchymal pulmonary disease.

Chlorpromazine was continued, but benztropine mesylate (Cogentin) was added to the regimen. The urinary tract infection was treated with a tetracycline. Two days after admission the hiccups ceased. A few days later the patient was noted to be weaker, more lethargic, and confused. A few hours later he abruptly expired.

Postmortem examination revealed marked atherosclerosis of the aorta and cerebral vessels, moderate atherosclerosis of the coronary arteries, myocardial hypertrophy (440 gm) arteriolonephrosclerosis, pyelonephritis, benign prostatic hypertrophy, nodular hyperplasia of thyroid and multiple gallstones. The brain appeared normal.

I have had a deep and abiding interest in the hiccup since the evening my eight-year-old son showed me the lantern slide *(Figure 1)* he had prepared for use in a lecture on philology he was to deliver to his class. So stimulated, I reached for a journal on my reading stand, one of several received sometime past but as yet unread, and flipping to the editorial page found encouragement in the following words: "This disturbance [hiccup] is usually the subject of humor rather than of medical concern, and it is seldom given the serious attention which it probably merits."[1]

BOUGH
THROUGH
ALTHOUGH
TOUGH
COUGH
HICCOUGH

Figure 1

Promptly I went to the library and initiated a brief but significant research project utilizing the *Cumulated Index Medicus.* The result is presented graphically in *Figure 2.* Indeed, the publication of

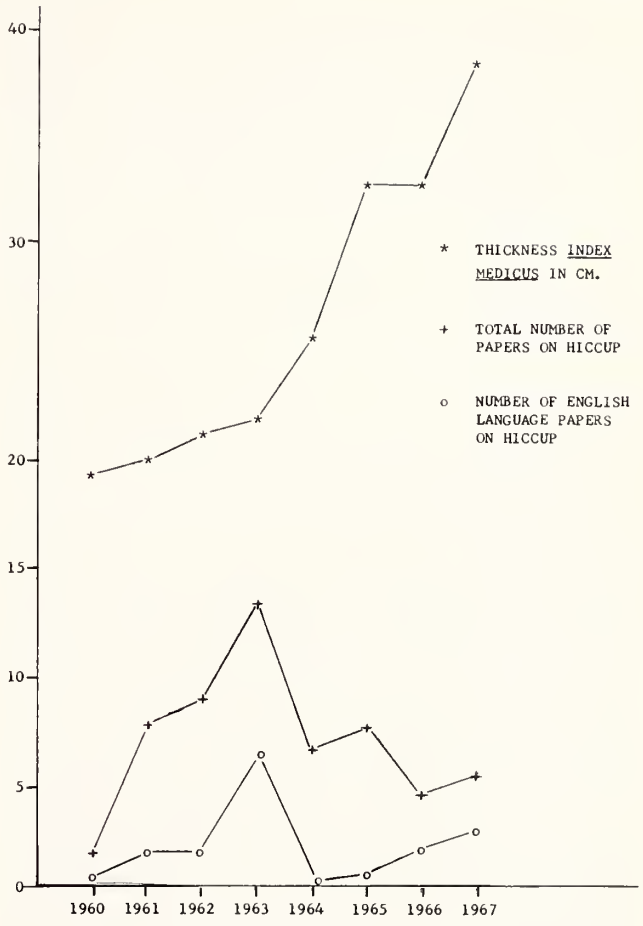


Figure 2

papers on every conceivable medical topic has increased to near astronomical proportions save under the heading hiccup! This is represented in the figure by comparing the number of papers published annually on hiccups with the thickness in cm of the *Index* over the years. The thickness figures, of course, provide a crude index of the relative increase in total medical articles in journals. Certainly the dearth in publications on hiccups, now brought to light, will capture the imagination of young clinical investigators and other eager grantsmen!

Hiccups have not always been so ignored. As recently as the 1930's such a notable as Charles Mayo[2] wrote of his observations and investigations of this phenomenon. And certainly the ancient physicians evinced an interest in hiccups. Hippocrates mentioned singultus in volumes 5, 6, and 7 of his eight volume *Aphorisms* and believed hiccups and convulsions closely related. Here are a few of his observations as translated by Wiilliam R. Riddell:[3]

"A convulsion (spasmos) is caused either by repletion (plerosis) or depletion (kenosis). So also singultus."

"The rectum or uterus inflamed, or the kidneys

suppurating, strangury supervenes: the liver inflamed, singultus supervenes."

"A convulsion or singultus supervening on a great effusion of blood is a bad sign."

"A convulsion or singultus supervening on excessive purging is a bad sign."

"Singultus and red eyes following vomiting are a bad sign."

"If sneezing is produced, the singultus being (temporarily) suppressed, the singultus will be cured."

The meager current literature on hiccups is not at all explained by any adequate understanding of the symptom. Indeed, the pathophysiology of hiccups is most totally not understood. The theories as to its mechanism are several and are contradictory. Some have believed it due to local irritation of the diaphragm or phrenic nerves, others that it represents some kind of reflex, and still others that there is a hiccup center somewhere in the brain stem.

V. L. Stotka *et al.*[4] in a paper in 1962 express probably the most widely held modern view of the mechanism of the hiccup. They say hiccuping is a pathologic respiratory reflex resulting in clonic spasm of the diaphragm and sudden forceful inspiration, the latter being abruptly terminated by closure of the glottis which frequently produces an audible sound. Although the phrenic nerves are most important in the efferent portion of this reflex, the vagus nerve branches to the larynx and lung, and the upper spinal nerves to the intercostal muscles are also involved. Afferent impulses which result in motor stimulation may play directly upon the spinal cells of origin of the phrenic nerves, or be mediated through higher centers, including the posterolateral and dorsomedial thalamic nuclei, the hypothalamus and the reticular portion of the medulla.

This sounds rather elegant but an effort to uncover the scientific data on which such an explanation is based is fruitless. The little research work on hiccups done in modern times seems to have included only gross dissection of nerve and muscle or the observation, with little elucidative study, of afflicted patients. However, Samuels[5] in a carefully studied series of patients has learned that the great majority of hiccup spasms are unilateral and confined to the left diaphragm!

Despite all this, a multitude of "causes" of the hiccups are known and certainly the disturbance is not rare. Clearly, hiccuping seems produced "centrally" by some form of central nervous system effect in certain instances, and "peripherally" in others. Among the circumstances believed to act directly on the CNS are the use of tobacco, alcohol, uremia, malaria, encephalitis, brain tumor, hydrocephalus, meningitis, vascular defects and psychic influences. Although hiccuping due to psychiatric disturbance may persist for many days it is typically absent during sleep. In uremia, hiccuping is felt to be of grave prognostic significance. Tables dorsalis occasionally results in distressing and persistent crises of hiccuping.

"Peripheral" causes of hiccuping are even more numerous and include anything capable of irritating afferent or efferent neural pathways or the diaphragm. To list just a few: hot foods, cold foods, gastric dilatation, gastritis, esophagospasm, intestinal obstruction, ileus, pancreatitis, strangulated hernia, peritonitis, hepatitis, carcinoma metastatic to liver, pregnancy, cardiac enlargement, pericarditis, pneumonia, diaphragmatic pleurisy, after abdominal operations (especially procedures in the upper abdomen), myocardial infarction, hiatus hernia, achalasia, mediastinal neoplasm, phrenic nerve injury during thoracic surgery, sudden chilling, wet feet, goiter, empyema, phrenic neuritis, etc. Of course, as Roth[6] points out, the well known magenblase syndrome is very commonly associated with hiccups.

At least three cases of persistent hiccuping have been reported associated with a hair in the external auditory canal pressing on the tympanic membrane.[7, 8] All three responded immediately to removal of the hair. It is probably pertinent here that the auditory canal receives sensory innervation in part via the greater auricular and lesser occipital nerves, both entering the third cervical nerve. You will recall that the phrenic nerve is made up of fibers emanating from C3, 4, and 5.

Persistent hiccuping is indeed of medical significance of itself. It occurs often in the setting of serious illness, whatever be its cause, and may lead to serious consequences through exhaustion of the patient. In the late grave cases ecchymoses may be found in the lower two intercostal spaces. This sign is an indication of dire import and demands immediate vigorous treatment.

Epidemic hiccup has been known for centuries but was most recently brought to medical attention in the epidemics from 1919 to the mid-1920's.[1, 9] This affliction began in Vienna in the winter of 1919-1920 and was reported by von Economo and seemed to have some relationship to the form of encephalitis which bears his name. An epidemic of hiccups wherein one thousand cases were reported occurred in Winnipeg in November and December of 1919. Ninety per cent of those afflicted were males and most were adults. In only two instances did more than one case occur per household. This was also the year of Winnipeg's first epidemic of encephalitis (104 cases with 25 deaths) but in only a few cases of encephalitis was hiccuping noted. Typically the onset was sudden, often during sleep, re-

sulting in 4 to 20 hiccups per minute in intermittent episodes of one to many hours of hiccuping over a course of several, usually three, days. Some patients had hiccups a week or longer. Soreness of abdominal and chest muscles was commonly experienced. Nasopharyngeal cultures of patients with epidemic hiccups in Winnipeg in 1919 invariably produced a growth of streptococci-producing green hemolysis. The organisms cultured from 16 patients were each injected into one of 16 rabbits and five rabbits developed myoclonic spasms of the diaphragm intermittently which lasted from 1 to 36 hours. Winnipeg experienced further epidemics of hiccups in the winters of 1922 and 1924 and epidemics occurred in the United States and in many places in Europe.

The differential diagnosis of hiccups must include the much rarer entity known as diaphragmatic flutter.[10] This was first reported in 1723 by Leuwenhoek in himself. Only some 45 cases have been reported. Diaphragmatic flutter is distinguished from persistent hiccuping by the higher frequency of the diaphragmatic contractions (35 to 480 per minute, usually about 150 per minute) and by the absence of the inspiratory sound observed in singultus. Flutter is usually irregular, but occasionally may be synchronous with the heartbeat. Contractions are usually visible in the epigastric area or the lower intercostal spaces and rarely may be so vigorous as to shake the bed which the patient occupies. Diaphragmatic flutter has been associated with epidemic encephalitis (in eight of the older reported cases) and several of the other reported cases have been in association with rheumatic or other heart disease.

It is doubtful whether there is any other symptom in medicine toward the cure of which there have been applied so many and diverse methods of treatment as have been used for hiccups. Hippocrates, as noted above, advocated the induction of sneezing to cure hiccup. Many are familiar with the prescription contained in *The Dialogues of Plato*[3] which reads as follows: ". . . hold your breath, and if this fails, then to gargle with a little water; and if the hiccough still continues, tickle your nose with something and sneeze; and if you sneeze once or twice even the most violent hiccough is sure to go."

In 1730 the following remedy was published:[3] "This (hiccup) often inconveniences people; to expel it many means have been discovered. Some cure it by unexpectedly frightening the patient. Some say to rub the little finger in the ears; some hold the breath or sneeze. The following has very often been found effective: take Juniper berries, Red Dog Rose and Curled Mint, of each a handful, pulverize coarsely, mix carefully together—then take leaven, very well fermented, the size of a goose egg. Knead the powder well into the leaven, lay it in a dish and pour over it very strong wine vinegar, hot and about boiling—stir the leaven round with a spoon till it is like a broth—then fold a cloth three-corneredwise, spread the leaven on it and lay it with the leaven fresh upon the patient's stomach so that the point of the cloth lies on the heart and the wide end stretches toward the navel; when it becomes dry, take very hot wine vinegar, sprinkle the leaven on the cloth thoroughly so that it becomes wholly wet and hot, replace it again as before and so as occasion requires—this treatment certainly is effective."

More modern therapeutic efforts have included the taking of snuff, inducing vomiting, swallowing dry bread or crushed ice, mustard plaster or an ice bag applied to the epigastrium, spraying the epigastrium with ethyl chloride, oral cocaine, sedatives, pulling on the tongue, digital pressure on the phrenic nerve in the cervical region, re-breathing into a paper bag, 5-10 per cent CO_2 in oxygen breathed via a face mask, gastric aspiration and lavage, phenothiazines, corticosteroids, hypnosis, oral viscous lidocaine, phrenic nerve block or crush, intravenous methylamphetamine, etc., ad infinitum.

At long last a seemingly definitive study by Salem *et al.*[11] has been reported wherein even the otherwise refractory hiccup has been promptly halted by stimulation of the pharynx with a catheter introduced through the nose. Isn't that odd! While writing about hiccups I've just this instant developed a case of hiccups myself! One moment please, while I manipulate this catheter through my nose and into the pharynx . . . hic . . . arrgh! . . . hic . . . hic . . . hic . . . hic. . . .

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Altitude Sickness (Seroche)

An Experience in Acclimatization to High Altitude

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IT WAS RECENTLY my good fortune to be selected as a member of a group formed to observe an eclipse of the sun. Medical attendance was needed as this was to be in a rather remote area at a high altitude (13,000+ feet) with a shortage of water, extremes of temperature, and a high incidence of water-borne infections.

Essentially these were the anticipated problems:

1. *Geographical isolation.* The observation site was a long day's truck ride over appalling unmarked roads far from the main urban center—La Paz, Bolivia.

2. *Altitude.* The landing field at the assembly spot (La Paz), where personnel and equipment were collected for transport to the observation site, was at an altitude of 13,500 feet. Of the 12 persons on the expedition three had lived at 10,000 feet until two days before arrival and the other nine had lived at or close to sea level. Acclimatization would take place here, as hard physical work was anticipated in assembling and installing an observatory at the observation site in a period of ten days.

3. *Temperature.* As it was early spring (October), at an altitude of 13,000 feet, it was anticipated that the nights would be cold and the days hot, due to the high altitude and subtropical location.

4. *Water.* It was anticipated that water would be a problem. No source was known, so it was presumed that a highly contaminated water supply would have to be utilized.

5. The ordinary incidence of illness and injury.

The known period of acclimatization to high altitude is about five to eight days.[9] At 10,000 feet or above no substitute for or effective treatment for this is known at present. Natives of high altitudes have the same or more susceptibility to "seroche" (severe headache, sleeplessness, anorexia, nausea, breathlessness, and mental torpor on arrival at high altitudes after a stay at sea level for more than 15-20 days). As a native of sea level, I contemplated with some apprehension the possibility of pulmonary edema.[4–10] This condition has only recently been recognized and its frequency established. Transportation to a lower altitude from high altitude for this emergency, ordinarily available by air, railroad, or motor car in a few hours, would be only available after several days of hard travel. So it was felt that an adequate supply of oxygen and prompt recognition and treatment would provide a better chance for survival in case this infrequent but serious condition should develop.[5–10] Therefore, oxygen was acquired at La Paz and transported by truck along with other supplies.

All personnel and equipment arrived at the assembly point at the appointed time. Equipment previously ordered was picked up—mainly oxygen and water treatment tanks. After four days of assembling personnel and equipment, the trip to the site was accomplished in two arduous days of overland travel. Because of recent information, the possibility of hastening acclimatization by means of ingestion of supplementary potassium was thought to offer some promise of help and probably presented no hazard.[3, 4] Accordingly, the unacclimatized group was divided into a control group and a treatment group. The treated group took 2 gm. of potassium salts and 2 gm. ammonium chloride daily. Acclimatization was judged by the incidence of headache, sleeplessness, pallor, nausea, somnolence, vomiting, diarrhea and confusion, lack of mental acuity, and difficulty in concentration.

Waterlow[2, 3] points out that the prolonged alkalosis due to CO_2 washout at high altitude is unique in that it is persistent as long as the subject is in an atmosphere where the low O_2 produces hyperpnea over a long period. Compensation apparently is by urinary excretion of electrolytes and apparently there is a significant potassium and sodium loss. Waterlow found, on his Colombian expedition, that potassium

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supplement measurably shortened the period of acclimatization and, when given to controls who had been on potassium restriction, rapidly restored them to normal. The author[2] states that after three days at high altitude on a low potassium intake he became comatose and edematous and that after restoration of potassium for three days, he became perfectly normal.

Of the 12 members of the team on whom observations were made, three had been living at about 10,000 feet and had been at low altitude only one day in transit, had no symptoms of altitude sickness, and no period of acclimatization. Three subjects volunteered as controls and took no ammonium chloride and no potassium salts. Three subjects took ammonium chloride and potassium salts one day before arriving at high altitude and three days following arrival.

As all medical supplies, surgical instruments, water treatment and testing equipment, and oxygen masks were carried in one handbag, no provision could be made for equipment for laboratory observations of blood O_2, blood CO_2, Na, KCl, or blood volume. The pH of urine was estimated by means of paper strip indicators and no other laboratory facilities were available.

Somewhat surprisingly, it was found that at the high altitude *all* personnel secreted urine with pH of about 5 regardless of whether they took potassium salts and ammonium chloride or not.[2, 3, 5] That this is a valid observation is borne out by the fact that Waterlow[2, 3] made the same observation as did Hurtado and others in Peru.[2, 3, 5]

Each member of the expedition was observed, questioned, and examined during the first week at high altitude. The objective basis of judgment was the temperature, pulse and blood pressure, pallor, somnolence, syncope, vomiting, diarrhea and Cheyne-Stokes respiration. Subjective symptoms were exhaustion, malaise, headache, sleeplessness, muscular cramping, muscular weakness, confusion, apathy, mental dullness, and dyspnea.

Subjects 1, 2 and 3 had taken the prophylaxis (potassium chloride, 2 grams daily and ammonium chloride, 4 grams daily) starting the day before arrival and continuing for three days. All three had headache; one had insomnia; two had Cheyne-Stokes respirations, and one had syncope (first day at high altitude). Specifically, *Subject 1* had two days of severe headache, sleeplessness, and dyspnea on the slightest exertion but was comfortable after the second day. *Subject 2* had exhaustion, malaise, paresthesias, dyspnea, emotional changes, mental torpor and had pallor, hypotension and syncope. At the end of the first day he was noticeably improved and after the second day had no symptoms. *Subject 3,* on the first day, had exhaustion, malaise, headache, somnolence, exertional dyspnea, and mental blunting. On the second day he had slight confusion. After the second day he felt normal and could think and work with vigor.

Subject 4, who did not take the medication, had acute nausea, vomiting and diarrhea on days 1, 2, 3 and 4. By the fifth day he had improved and experienced good acclimatization on day 6. *Subject 5* took no medication. He had marked dyspnea on days 1, 2 and 3, nausea, vomiting and diarrhea on days 2, 3, 4, 5, 6, and 7. He attained good acclimatization on the eighth day. *Subject 6* did not take the prophylaxis. He suffered exhaustion, malaise, headache, dyspnea, nausea, vomiting and diarrhea on days 1, 2, 3, 4 and 5. He complained of mental dullness and disturbance of mood on days 2, 3, 4 and 5. Good acclimatization was achieved on the sixth day.

Subject 7 had lived at 9,500 feet. One day was spent on the way at low altitude. He had no symptoms and felt fine without the medication. *Subject 8* had lived at 7,000 feet and worked daily at 9,500 feet. One day was spent on the way at low altitude. He had no ill effects. No prophylaxis was taken. *Subject 9* had lived and worked at 9,500 feet. He spent seven days at sea level before arrival at the site. He did not take the prophylaxis. One remarkable physical finding on this subject was a blood pressure of 130/80 repeatedly. Subject 9 stated that for years he had run a blood pressure of over 160 systolic. Except for mild nausea and diarrhea on the first day, he had no symptoms.

Subjects 10, 11 and 12 came by a different route, spent most of their time of acclimatization separately and were seen only if ill. They did not take the medication.

Subject 13, a native, lived and worked in Bolivia at an altitude of almost 17,000 feet and was only seen when he felt ill—never because of altitude sickness.

Conclusions

1. Probably the series is too small to be of great significance.

2. In the treated group (potassium salts and ammonium chloride taken one day before arrival at high altitude and for three more days) acclimatization was complete on days 3 and 4; average 3.33. Total man-days of acclimatization was ten days for three men.

3. In the untreated group (the control group) acclimatization was complete on days 5, 8 and 8 respectively, an average of seven days per man. Total man days of acclimatization was 21 days for three men.

4. Acclimatization was no problem in the group of personnel coming from a high altitude.

(Continued on page 577)

Peripheral Vascular Disease—

—*Diagnosis, Evaluation and Reasons for Surgical Intervention*

J. W. GRAVES, M.D., F.A.C.S.,* *Wichita*

Some basic problems confronting the practicing physician regarding peripheral vascular disease have been presented. Diagnosis, evaluation and reasons for surgical intervention have been outlined. Early recognition of the many manifestations of peripheral vascular disease combined with definitive surgical therapy will often add years to life and help restore patients to a useful place in society.

DURING THE 12-YEAR PERIOD between 1956 and 1968, we have had the opportunity to examine, evaluate and operate slightly more than 400 cases of peripheral vascular arterial disease. In this brief span of time numerous technical changes have been introduced, new instruments have been designed, angiographic techniques have been improved and refined. Research in the field of lipid metabolism and transport continues to widen the horizon of peripheral vascular surgery. It is evident at this time that the most constant and predominant factor in the etiology in the various manifestations of peripheral vascular disease is arteriosclerosis. The majority of cases involve the aorto-iliac and femoro-popliteal segments of the arterial tree and to a lesser extent the arteries involving the brain and kidneys, thromboembolic phenomena, massive iliofemoral thrombosis, and trauma.

The initial enthusiasm for surgical intervention in extracranial occlusive vascular disease involving the carotid-vertebral system has gradually waned and selection of patients is now more limited to those presenting signs and symptoms of intermittent cerebral ischemia, rather than frank "stroke."

In general, the salient features relating to occlusive vascular disease of the arteries supplying the brain are as follows:

1. Brain ischemia is frequently due to occlusive lesions that are amenable to surgical attack *(Figure 1)*.

2. Arterial insufficiency may be due to thrombosis situated at any point between the arch of the aorta and the smaller intracranial branches.

3. The common sites of occlusion are at the origins of the innomate, left common carotid, and left subclavian; at the bifurcations of the common carotid arteries, and at the origins of the vertebral arteries from the subclavians.

4. In about 40 per cent of the patients with strokes, the initial episode is mild and transient and it is in this group that prompt diagnosis, arteriographic localization and surgical intervention is most rewarding.

5. Occlusive lesions of the great vessels at the origin from the aorta are best managed by by-pass grafts. Thrombosis of an internal carotid or vertebral artery may be corrected with endarterectomy and vein patch graft or occasionally with a by-pass graft, utilizing a synthetic prosthesis.

The diagnosis of renal artery lesions *(Figure 2)* need not be as complex and difficult as the current and voluminous literature on this subject would lead us to believe.

The ideal patient for further study in regard to the possibility of occlusive renal artery disease frequently has the following characteristics:

1. He is young.
2. He is clinically free from other serious disease.
3. The hypertension is of recent or sudden onset.
4. He has pronounced "angiospastic" elements in the funduscopic examination.
5. He has an associated bruit over one renal artery.
6. He has a smaller renal shadow associated with unilateral decrease in function as determined by the excretory urogram.

With a normal intravenous urogram and a normal renogram, one can be reasonably assured that

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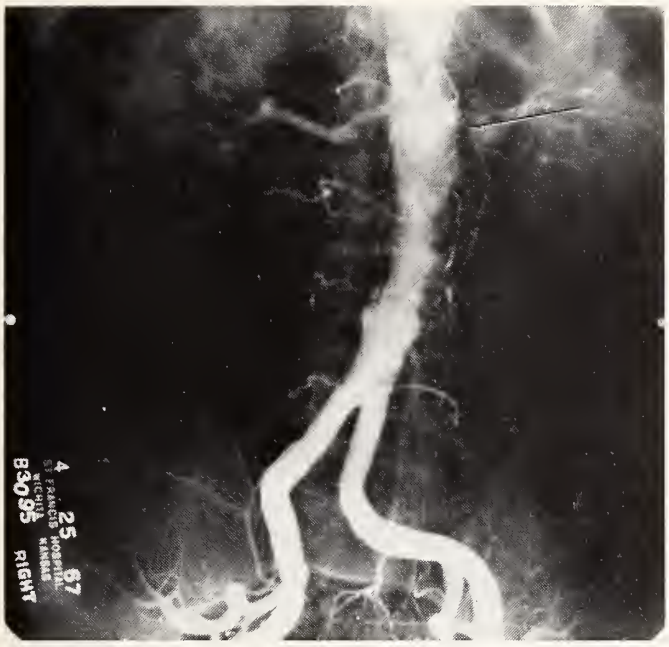


Figure 1. Partial occlusion at bifurcation involving both internal and external carotids.



Figure 2. Complete occlusion left renal artery at origin.

a surgically correctable vascular lesion due to atheroma is not present. When either the pyelogram or renogram is abnormal, the hypertensive patient should have a renal arteriogram. Retrograde arteriograms are more valuable than a translumbar aortogram. When an operable vascular lesion is anatomically demonstrated on the arteriogram, the work performance of the individual kidney should then be determined with a split renal clearance study before the patient is considered a candidate for vascular reconstructive surgery.

The most constant and predominant factor in the etiology of the various manifestations of peripheral vascular disease is arteriosclerosis. Atherosclerotic lesions are usually diffuse, but the tendency of extensive deposits producing segmental occlusion of major arteries makes possible the surgical intervention that has appeared in recent years. It would appear to us, at this particular moment, that the most important consideration is the fact that the medical profession as a whole must become cognizant of the multiple and varied manifestations of peripheral vascular disease. At the present time surgical intervention in the realm of peripheral vascular pathology can frequently bring about:

1. Extension of life.
2. Relief of intolerable pain.
3. Frequent salvage of limbs and often a partial or complete return to economic productivity.

There are 19,000,000 Americans 65 years of age, or older, and in the next 15-20 years it is estimated that the elderly will total 25,000,000. It is in the 5th, 6th and 7th decades of life that we most frequently encounter abdominal aortic aneurysms (x-ray depicting characteristic curvilinear line of calcification) *(Figure 3)*.

Numerous statistical reviews reveal that 51 per



Figure 3. Abdominal aortic aneurysm showing curvilinear line of calcification.

cent of patients with abdominal aortic aneurysms are dead in three years. Death is not infrequent six months after the onset of symptoms; the likelihood of rupture is great.

Resection and replacement of aneurysmal masses with a synthetic prosthesis is now an established and acceptable surgical procedure, carrying a mortality rate of less than 10 per cent. Aorto-iliac endarterectomy is often acceptable in the management of pure occlusive disease *(Figure 4)*.

Frequently the practicing physician has the unpleasant task of informing his patient that amputation, due to ischemia, is inevitable. It is possible that this decision, in many instances, can be reversed. One should consider the frequently over-

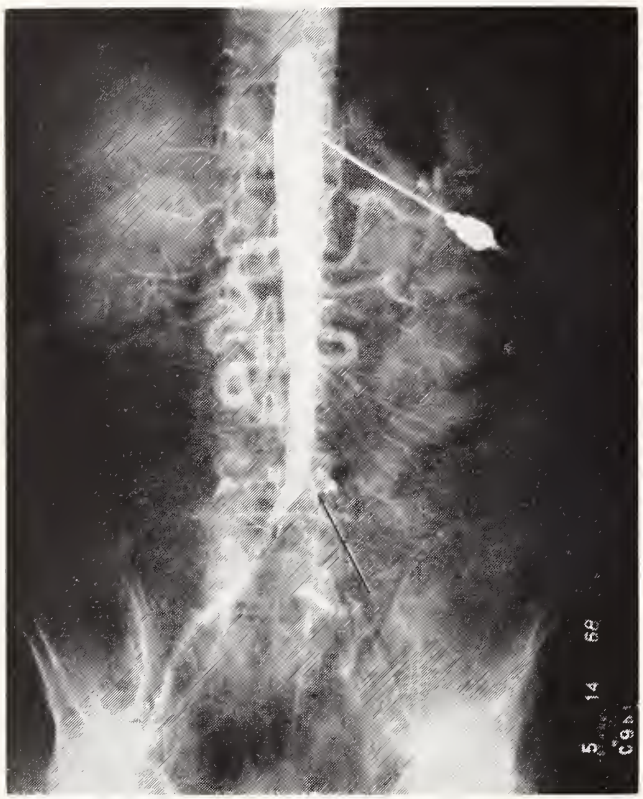


Figure 4. Atheromatous occlusion left common iliac and partial closure distal aorta.

looked possibilities of conversion of an above-knee amputation to a below-knee amputation. With a well chosen peripheral vascular surgical procedure the distinct possibility of this conversion is well documented. With a below-knee amputation, the patient has a much better balance and an extremity with which he can easily handle a prosthesis. He can more easily get in and out of bed and also use toilet facilities with far less diffculty.

Although the disappointing end results in femoro-popliteal occlusive vascular disease are well established, it nevertheless is feasible in selective cases to avert an above -knee amputation.[1]

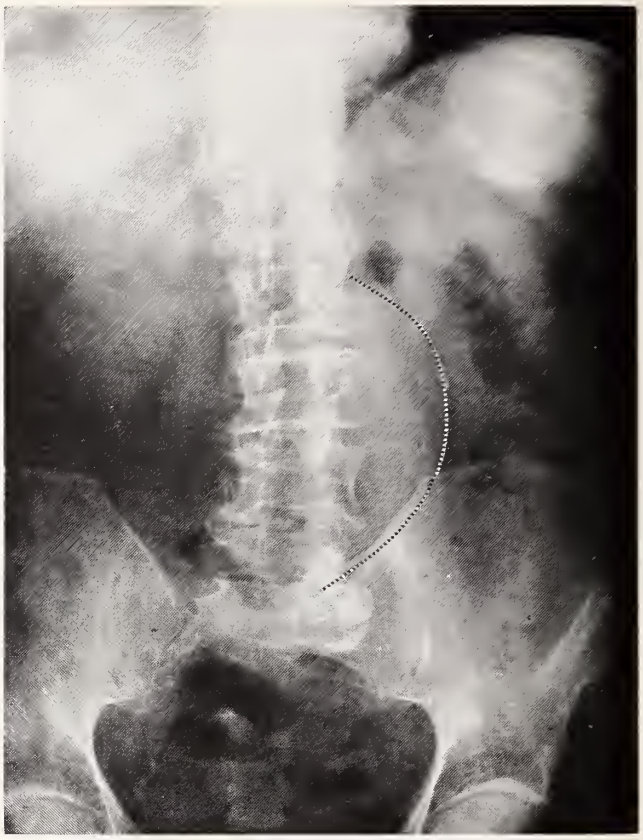


Figure 5. Atheromatous occlusion proximal two-thirds superficial femoral artery.

The surgical procedures currently available for reconstruction of the femoro-popliteal tree must be carefully chosen *(Figure 5)*. The symptomatic success rate for aorto-iliac occlusive vascular disease has been on the order of 90 per cent over a given five-year period; whereas the symptomatic success rate of femoro-popliteal occlusive vascular disease has been only 60-70 per cent and frequently less. The more advanced the disease, the higher the failure rate becomes, and yet, it is in people with advanced disease that the need for the arterial repair is the greatest.[2] Surgical approaches most frequently employed in the presence of occlusive disease in the femoro-popliteal tree are as follows:

1. Endarterectomy (with or without a vein patch graft) for a short segmental involvement.
2. Reverse vein by-pass graft.
3. Aorto-profundal shunt, preferably employing an autogenous vein but a synthetic fabric graft may be utilized.
4. Direct exploration and sometimes dilatation, utilizing a Fogarty balloon catheter. We find this a most valuable aid in determining the "distal run-off" in spite of discouraging reports following femoral arteriography.

5. Use of synthetic by-pass graft, only when none of the above procedures can be employed.

Diagnosis and Evaluation of Aortic-Iliac and Femoro-Popliteal Occlusive Vascular Disease

History, physical examination and laboratory procedures constitute the essential elements in arriving at a pathological and anatomical diagnosis. Certain questions should be answered specifically in rendering a more accurate diagnosis:

1. Is there an abnormality of function in one or more of the extremities that is consistent with occlusion of the appropriate artery? A great number of patients frequently consult an orthopedist or a neurosurgeon initially because of pain or lack of function.

2. Is the pain closely related to muscular activity or does it occur only at rest?

3. Is there atrophy of tissues, loss of hair, frank gangrene or necrosis present?

4. It is important to rule out concomitant carotid or renal arterial stenosis, or both, as they supersede in importance to aorto-iliac and femoro-popliteal occlusive vascular disease.

5. Neoplasia, liver disease, muscular dystrophy, mental disease, infection, etc., might preclude arterial reconstruction, make it futile or necessitate deferral.

6. Are peripheral pulses absent or present or temperature gradients from below downwards obvious? Is there marked blanching on elevation and obvious delayed venous filling time in the dependent position.

Evaluation

The physician's final recommendation should be based on the following guidelines:

1. Familiarity with the natural history of the disease.

2. A consideration of the general condition of the patient.

3. The status of other parts of the peripheral vascular system, that is, the coronaries and brain, etc.

4. What is the prognosis if no treatment is given, or what is the prognosis if only medical measures are used, as compared to the prognosis with surgical intervention?

5. What can surgical treatment actually accomplish?

6. What are the early and what are the late postoperative vascular complications that may affect the end results?

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Altitude Sickness

(Continued from page 573)

5. One observation—blood pressure 130/80 in a person claiming previous arterial hypertension is of interest. The writer, while working part time in a dispensary near the observation site (a Belgium Catholic Mission Hospital), was told by the nurse that in the three years she had been there she had not seen one case of arterial hypertension at the dispensary and that commonly the systolic blood pressure ran 90 to 100 mm Hg. During the two weeks at Huachecalla—the observation site, the writer took blood pressures on all patients seen in the clinic of the town and observed no blood pressure over 110 systolic. This phenomenon would bear further investigation.

6. While the number of cases observed is probably not significant, the apparent acceleration of acclimatization and the apparent improvement in control of "seroche" (acute altitude sickness) suggests that further trials and evaluation would be worth while when the opportunity occurs.

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Lung Disease

Scalene Node Dissection or Lung Biopsy in the Diagnosis of Lung Disease

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Introduction

THE DIAGNOSIS OF LUNG DISEASE is greatly enhanced if the clinician can have available the pathologic report. In an effort to obtain this, two procedures are available at the present time. One is scalene node dissection, and the other is lung biopsy. In an effort to determine which of these is the most effective, a series of patients was reviewed. It was quickly found that the scalene node dissection was utilized for the establishment of diagnosis when the disease was localized in the lung substance, and that lung biopsy was more effective for diffuse disease of the lung. It was also found that scalene node dissection was much more effective if lymph nodes were palpable prior to the operative procedure.

Diffuse disease was defined as disease in more than one area of the lung.

Scalene Dissection

Scalene dissection is well known. Many men such as Shields *et al.*[4] have considered the dissection in the absence of palpable nodes. Klingenberg,[3] utilizing postmortem tissue found in 323 malignant specimens, 107 with prescalene metastases. Many lymph nodes were too small to be palpable.

Of 52 patients subjected to scalene dissection during the past ten years, 11 had diffuse disease and 40 had local disease of the lungs. One scalene dissection resulted in the diagnosis of metastatic malignancy from the testicle.

When lymph nodes were palpable prior to dissection, as was the case in 50 per cent of the patients, the diagnosis was established in 75 per cent (39 patients).

Of the 11 patients with diffuse disease of the lung, three did not have carcinoma. The diagnosis was established in only five of these by scalene dissection.

Scalene dissection for local lung disease was done in 40 patients. The diagnosis was established in 20 of these. Of the patients with local disease, four were not malignancies.

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Complications

Fatal outcome did result from the disease, but no fatal outcome was a result of the scalene dissection *per se*. There were no infections and only one pneumothorax of minor nature which subsequently absorbed.

Lung biopsy cannot be substituted for scalene node dissection, nor can scalene node dissection be substituted for lung biopsy. Lung biopsy is very effective in establishing a diagnosis when the disease is diffuse throughout the lung. Scalene node dissection, particularly if lymph nodes are palpable prior to the procedure, is effective in establishing the diagnosis in localized disease of the lung.

Of the 52 patients operated upon, the diagnosis was established by scalene dissection in 25 patients, or almost 50 per cent. This figure is greatly enhanced when lymph nodes are palpable. Lymph nodes were palpable in 50 per cent of patients (26), and the diagnosis was established in 75 per cent of these (19).

Lung Biopsy

Lung biopsy is not new. Andrews and Klossen[1] wrote of eight years' experience in 1957. Since then many authors, as Effler[2] and Allbritten,[5] have pointed out the value of this procedure in generalized lung disease.

Of 36 patients subjected to lung biopsy during the past six years, analysis revealed that far more lung biopsies were done for diffuse disease than for local disease. Seventy-five per cent, or 26 of the 36, had lung biopsies to determine the nature of the diffuse disease. Of these 26, nine or 2.5 per cent had carcinoma, and 17 or 47 per cent, were not carcinoma. In 66 per cent of all patients the diagnosis was established by the procedure. It is interesting to note that lung biopsy was utilized for

localized disease in five patients, or 14 per cent of the total. In all five, carcinoma was the cause of the local disease, and in all five, the diagnosis was established by the procedure.

Complications referable to lung biopsy were pneumothorax in two and infection in one. There were no fatal outcomes referable to the procedure itself.

Technique

The technique for scalene dissection or supraclavicular node dissection in the neck, whether or not associated with retrosternal dissection, is well known. There is no need to describe this procedure here.

The technique of lung biopsy is not as well known and should be reviewed. A direct lung biopsy is safe and without complication when restricted to the lung biopsy itself. The surgeon must resist the temptation to extend the thoracotomy in order to introduce the exploring hand into the chest. When this is done, a thoracotomy has been accomplished, and the results are not as good.

Our procedure of lung biopsy is as follows: A small incision, approximately three to four inches long is made in the fourth interspace, usually on the right. After hemostasis, the muscle fibers of the serratus anticus and the intercostals are divided to the pleura. Rake retractors allow enough exposure to open the pleura, and with some help from the anesthetist via the intratracheal tube an edge of the lung usually presents in the wound. This can be grasped with a Pennington forceps and elevated into the wound, whereupon mattress sutures, usually of interrupted chromic catgut, are utilized much as in a liver biopsy, to effect hemostasis in the small area. After the mattress sutures are placed, a small portion of the lung, usually that enclosed in the Pennington clamp, is removed. No further suture is necessary. The lung is allowed to retract, and with the anesthetist again creating pressure on the intratracheal tube in order to keep the lung expanded, double rows of running chromic catgut reinforced with mattress sutures are utilized to close the aforementioned intercostal and serratus anticus musculature. A simple closure of the skin follows this to complete the procedure.

Conclusions

Localized disease of the lung is usually carcinoma. Diffuse disease of the lung is most commonly Hamman-Rich disease, or diffuse interstitial fibrosis of the lung.

Scalene node dissection will establish the diagnosis in 50 per cent of patients, regardless of whether or not nodes are palpable, and in 75 per cent of patients when nodes are palpable.

Lung biopsy will establish the diagnosis in 66 per cent of patients with diffuse disease. It is felt that the series yielding the figure of 14 per cent for establishing the diagnosis in local disease is too small to be significant.

Complications were minimal in both series. It must be emphasized that the surgeon must restrict himself to lung biopsy only, and not extend the operative procedure to a thoracotomy.

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FAMILY PLANNING FILMSTRIPS FOR PATIENT EDUCATION NOW AVAILABLE

A three-part patient education filmstrip series about family planning is presently available from National Health Films of Atlanta.

The series, entitled *Planning Your Family,* is designed for use by public health and clinic nurses, social workers, and others to assist them in discussions about birth control. It is a complete and comprehensive teaching aid which is suitable for individuals with a limited educational achievement. The explanations are simple and non-technical and the diagrams are colorful and clear. The use of colorful silhouette figures makes the filmstrip series appropriate for all socio-economic and racial groups.

Planning Your Family was written by Mrs. Hazel Ann Hutcheson, R.N., M.N., recognized nationally as an authority on family planning patient education.

Facts About Family Planning, the first filmstrip, is primarily to be used in case finding activities; the second, *Modern Methods of Family Planning,* is focused on the use of the intrauterine device and oral contraceptives, and the third filmstrip, *Traditional Methods of Family Planning,* presents information concerning methods of contraception not requiring physician supervision. Each filmstrip includes narration on a 33⅓ rpm record and printed script.

Inquiries regarding purchase or preview of the entire series or individual filmstrips should be directed to National Health Films, Box 13973, Station K, Atlanta, Georgia 30324.

Urinary Calculi

Medical Management of Urinary Calculous Disease

KENNETH E. STANLEY, JR., M.D.,* ***Wichita***

URINARY CALCULOUS DISEASE is found in about three per cent of patients admitted to hospitals. Eighty to 85 per cent of the patients will have at most one recurrence and pose no special problems for long-term management. The remaining 15 to 20 per cent are prone to have multiple, bilateral, frequently recurring calculi. They frequently have recurring bouts of urosepsis, hospitalizations, surgical intervention and time lost from work. It is this group of patients who pose great diagnostic and therapeutic challenges. Any measures which can be employed to prevent stone recurrence or to prevent growth of existing stones thus would be salutory. The purpose of this paper is to provide a basis upon which a reasonable plan of medical management can be formulated.

Anatomy and Physiology of Stone Formation

A urinary calculus always consists of three parts: nucleus, matrix and crystalline interface.

The nucleus, which must be present for stone formation to occur, usually is microscopic in size. It may consist of minute aggregates of crystalloid substances, amorphous sediment, coagula of blood or fibrin, cellular debris, casts, agglutinated bacteria or a foreign body, such as a retained fragment of a stone incompletely removed at surgery. Randall[1] postulated that many nuclei derive from subepithelial calcific plaques, found in the papillae of 20 per cent of kidneys examined at autopsy.

Once the nucleus is formed it becomes the nidus upon which an organic matrix is deposited. Matrix consists chiefly of uromucoid but also contains amino acids, carbohydrates, leucocytes and desquamated epithelial cells. Matrix acts not as a nidus for stone formation but rather arborizes throughout the entire body of the calculus forming a framework or lattice upon which crystalline growth occurs. Crystallization probably occurs upon the pre-existing matrix framework although some authors contend that crystallization occurs first and matrix formation secondarily.

Human urine is a complex fluid, containing various crystalloids in a supersaturated state. Among these are calcium, oxalate, phosphates and uric acid which are the most common crystalloids found in urinary calculi. Since these are present in a supersaturated state, the really great question is why all people do not constantly form stones. The answer must lie in the presence of some factor(s) which act to keep these crystalloids in supersaturation.

Boyce and others[2] have shown that urine contains a complex of colloids, the chief function of which is to promote supersaturation of urinary crystalloids. It is assumed that if these colloids are absent or deficient or if an antagonistic colloid is present, crystallization begins and forms the nucleus for stone formation. Once crystallization begins, the colloids neither will reverse nor deter the process, regardless of the nature of the nucleus.

Once started, most of the regimens outlined in this article must be continued for the life of the patient. Many of the medications and dietary restrictions are tedious, unpalatable and poorly accepted by the patient. Before they can succeed, the patient must be properly motivated. In general, these measures are reserved for patients in the following categories (modified from Weyrauch and Rosenberg).[11]

1. **Multiple or frequent recurrences of stone;**
2. **One kidney removed because of calculous disease;**
3. **Calculi in a single kidney (other kidney absent or removed for whatever cause);**
4. **Multiple calculi in one kidney;**
5. **Bilateral calculi;**
6. **Calculi present but operation refused or not considered practical;**
7. **Presence of residual urinary infection or obstruction which is impossible to eliminate following removal of calculus.**

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More recently, Howard[3] has shown that normal urine contains a peptide which prevents calcification. This peptide uniformly is absent from the urine of chronic calcium stone formers.

Any factor which tends to increase the urinary excretion of crystalloids may lead to calculous formation. It should be remembered, however, that simple crystalloid overload by itself will not cause calculous formation. Other factors leading to the formation of a nucleus or interfering with the colloid protective mechanism must be present.

Many disease states may participate in the formation of calcific urinary calculi by increasing the amount of calcium excreted in the urine. Hyperparathyroidism, sarcoidosis, berylliosis, carcinomatosis with osseous metastasis and multiple myeloma all produce both hypercalcemia and hypercalciuria. Differentiation between these usually is not difficult. Hypervitaminosis D and excessive milk and antacid ingestion for treatment of peptic ulcer (milk-alkali syndrome) usually produce hypercalciuria alone. Immobilization, such as seen in orthopedic patients, leads to greatly increased resorption of calcium from bone; since such resorbed calcium is eliminated entirely by the kidneys, hypercalciuria results.

Renal tubular defect, such as seen in congenital renal tubular acidosis or following pyelonephritis, leads to systemic acidosis. Since bone resorption is increased in acidosis, hypercalciuria results. Patients with this syndrome also have persistently alkaline or only weakly acid urine. The combination of elevated urine pH and hypercalciuria enhances the precipitation of calcium salts, especially calcium phosphate.

Urinary infection, especially with urea splitting organisms, renders the urine alkaline, thereby decreasing the solubility of calcium and phosphates. In addition, clumps of bacteria may form a nucleus for stone formation.

Urinary obstruction or stasis enhance stone formation by preventing the normal washing out of microscopic nuclei and microliths. Such retained bodies thus lie in stagnant urine, increase in size and become full blown calculi.

Evaluation of the Patient

Proper evaluation of the patient begins with a carefully conducted history and physical examination. Careful questioning may elicit a history of excessive vitamin D intake, milk-alkali syndrome, or previous urinary infections, any of which can lead to calcium stone formation. A family history of urinary calculi may suggest cystinuria.

The next practical step is excretory urography to determine the number and location of existing calculi, the presence of urinary obstruction and the status of the renal parenchyma on each side. A properly collected urine specimen is checked for pH, the presence of infection and the type of crystals present.

It is of vital importance to determine if the patient has any metabolic disorder responsible for his stone formation such as hyperparathyroidism, renal tubular acidosis, hyperuricemia or cystinuria. Familial hyperoxaluria rarely may be found to be responsible for stone formation.

Baseline blood chemical determinations should include calcium, phosphorous, uric acid, carbon dioxide content and total serum proteins. Creatinine clearance studies should be done if there is any question as to the status of renal function.

Measurements of urinary calcium excretion may be helpful but it must be realized that calcium stones present within the urinary tract may "shed" sufficient calcium into the urine to give erroneous results. The main causes of hypercalciuria already have been mentioned. Another common cause is the so-called "idiopathic hypercalciuria." Many such cases, in reality, are dietary in origin since strict reduction of calcium intake usually will reverse the hypercalciuria.

The crux of any basis for evolving a plan of medical management is a knowledge of the chemical composition of the patient's stone. Every stone passed or removed should be subjected to chemical analysis. Large stones should have the core and cortex analyzed separately with management directed mainly towards the content of the core. Uric acid stones occasionally become secondarily laminated with calcium salts. Therapy in this case would be directed toward the uric acid content.

The main types of stones found are calcium oxalate, calcium phosphate, magnesium ammonium phosphate, uric acid and cystine. Xanthine stones have been reported, but are so rare that they will not be considered here.

If stone analysis is not possible, the type of stone present may be suggested by its appearance on x-ray. Calcium oxalate, calcium phosphate and magnesium ammonium phosphate stones are radiopaque. Cystine stones are also radiopaque but have a characteristic homogenous ground-glass appearance. Pure uric stones are radiolucent. Staghorn or branched calculi usually are composed of calcium phosphate, magnesium ammonium phosphate or cystine. Pure calcium oxalate stones usually are rounded or may appear as snowflakes with spicules radiating from a central focus—the so-called mulberry stone. A laminated appearance suggests a phosphatic stone.

Contributory evidence may be inferred from the urine pH and the presence of attendant urinary infection. Calcium oxalate calculi usually form in un-

infected, neutral or slightly alkaline urine. Magnesium ammonium phosphate stones and to a lesser extent calcium phosphate stones usually occur in the presence of urinary stasis and infection with urea-splitting organisms which renders the urine highly alkaline. Uric acid and cystine stones generally occur in uninfected acid urine. Calculi caused by hyperparathyroidism usually are calcium oxalate but may be calcium phosphate, especially if secondary obstruction or infection have occurred.

Management

The role of the surgeon in managing the chronic stone former is limited to the removal of stones and the correction of any pre-existing or complicating obstruction. Surgery alone cannot prevent recurrences—this can only be done by medical means.

Some principles of medicine management are applicable to all patients, regardless of the type of stone. The aims of any program adopted are two-fold: to prevent growth of existing stones and to prevent the formation of new stones.

It is of paramount importance that one recognizes and corrects any metabolic defect responsible for the stone formation such as hyperparathyroidism, renal tubular acidosis, immobilization, milk-alkali syndrome, dietary indiscretions and hyperuricemia with or without gout. The desirability of eliminating any urinary infection, obstruction or stasis is obvious.

Hyperparathyroidism deserves special mention. Although it causes only about five per cent of all urinary calculi, if it is recognized, cure can be expected following surgical removal of the offending parathyroid adenoma.

The forcing of fluids is basic to all therapeutic regimens. The patient should be urged to drink sufficient water to maintain a daily urine output of three liters. Water intake should be spread over the waking hours as evenly as possible—one glassful every hour. This measure helps keep the urinary crystalloid concentration below the crystallization point, tends to wash out tiny calculi before they gain significant size and also helps combat any associated infection.

More specific measures are based upon the chemical composition of the patient's stones. For clinical purposes these may be grouped into four categories: (1) calcium oxalate; (2) phosphate stone—either calcium phosphate or magnesium ammonium phosphate; (3) uric acid; (4) cystine.

Calcium Oxylate: The patient is instructed in a low calcium-low oxalate diet. Dairy products, except butter, are prohibited as are rhubarb, spinach and chocolate. Sodium phytate given by mouth forms an insoluble complex with calcium and prevents its absorption from the intestinal tract. Magnesium oxide given with Pyridoxine has been shown to be helpful, apparently by altering the solvent characteristics of the urine.[4] Magnesium also combines with oxalate to form magnesium oxalate which is more soluble in urine. Salicylates cause an increase in urinary glucuronide which helps keep calcium in solution. In our clinic we use salicylamide (Salicim-Neissler) 10 grains three times daily. The thiazide diuretics have been shown to reduce urinary calcium excretion in idiopathic hypercalciuria.[5] Whether or not this will prevent stone recurrence is not yet known.

The urine should be maintained in the acid range. Ammonium chloride, hippuric acid or methionine may be utilized for this purpose. An excellent source of hippuric acid is cranberry juice, four ounces three or four times daily; this is quite palatable and usually well accepted by the patient.

Howard[3] has shown that if the patient's urine lacks the specific protective peptide, its action may be imitated by giving a buffered mixture of sodium and potassium phosphates. This agent is contraindicated in the presence of phosphatic stones and is not yet available for routine clinical use.

Phosphatic Stones: Since this type of calculus commonly is associated with urinary stasis and infection, it is vital that these factors be eliminated as much as possible. Beyond this, the Shorr regimen has proved to be a very valuable means of preventing recurrences. This regimen consists of a diet low in phosphorus and calcium; in addition, patients take one ounce of aluminum carbonate jel (Basaljel) four times daily. Aluminum carbonate jel combines with alimentary phosphorus to form the insoluble aluminum phosphate. By this regimen the urinary excretion of phosphates may be greatly reduced. The chief drawback of this program is the constipating effect of Basaljel, although most patients tend to become acclimatized to it. As originally evolved, the Shorr regimen also included the oral administration of estrogens. Estrogens are known to cause an increase in urinary citrate which increases the stability of dissolved calcium. Marshall,[6] however, has questioned the need and even the advisability of such hormonal manipulation. It should be noted that sodium phytate and the aluminum jels should not be given simultaneously since their actions offset each other. If the patient's urine remains strongly alkaline, urinary acidification may be necessary, especially when dealing with magnesium ammonium phosphate calculi.

Uric Acid Calculi: Uric acid calculi may form in patients with hyperuricemia and gout although their occurrence is not limited to such patients. In

fact, most patients with uric acid calculi do not have hyperuricemia. Uric acid calculi also occur frequently in patients being treated for various lymphomas. It would seem logical to prescribe a low-purine diet for patients with uric acid stones but this measure is of very limited value. The endogenous production of uric acid remains excessive despite strict dietary restrictions.

Allopurinol[7] (Zyloprim—Burroughs Wellcome & Co.) is an effective xanthine oxidase inhibitor which prevents the conversion of xanthine to uric acid. This agent is highly effective in patients who form uric acid stones rapidly. In addition, the urinary pH should be maintained at 7.1 which is the point of maximum solubility for uric acid. Either sodium bicarbonate or sodium or potassium citrate may be used. If long-term urinary alkalinization is employed, one must be cautious that one does not induce the milk-alkali syndrome with resultant formation of calcium calculi; such a sequence of events has been reported to occur. With long-term use of allopurinol, there is a theoretical possibility of inducing the formation of xanthine calculi but this has not yet been reported.[8]

Cystine Calculi: Cystine calculous disease is a relatively uncommon hereditary-familial disorder. It is one of the most common causes of urinary calculi in children in this country. The cause of cystine calculi is a renal tubular defect in which cystine normally present in the glomerular filtrate cannot be reabsorbed. Since cystine is highly insoluble in acid urine, calculous formation occurs. Formerly, the only effective treatment consisted of alkalinization of the urine and the ingestion of enormous amounts of water. More recently D-penicillamine[9] has been shown to be highly effective not only in preventing recurrence but also in reducing the size of existing calculi. D-penicillamine combines with filtered cystine to form a complex which is highly soluble in the urine. Adverse effects of D-penicillamine therapy include drug sensitivity, iron deficiency anemia and nephrosis.

Bladder Calculi: Calculi in the urinary bladder are almost always due to bladder outlet obstruction. Bladder calculi most commonly are composed of uric acid. This is in contrast to upper urinary tract calculi caused by obstruction which usually are calcium containing calculi. Of interest, Potter[10] *et al.* have reported calcific bladder calculi associated with hyperparathyroidism.

Dissolution of Stones: There is common belief among the laity that urinary calculi can be dissolved by medical means. With few exceptions this belief is erroneous: following removal of an overactive parathyroid adenoma, calcific renal calculi rarely may dissolve; uric acid and cystine calculi may reduce in size under intensive treatment; bladder calculi may be dissolved by continuous irrigation with Renacidin through a urethral catheter but this may require many days or weeks to accomplish.

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Wound Care—

Combined Orthopedic and Vascular Problems in Lower Extremities

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J. W. GRAVES, M.D., F.A.C.S.,** ***Wichita***

THE OPTIMUM SURGICAL care of wounds has been evolved through long experience at multiple centers in this country and abroad. The principles involving grossly contaminated wounds are even more strict in regard to primary care of the wound, its debridement, and wound closure.

Orthopedic care of fractures is further influenced by the number of rather stringent rules concerning open reduction and internal fixation. When the original injury is an open fracture, even greater restrictions apply concerning the possible use of open reduction or internal fixation, or both. The following case report is an example wherein, due to the associated vascular injury, the basic principles of compound fracture care had to be modified.

Case Report

G. B., age 19, a Caucasian male farmer, was admitted to St. Francis Hospital with a 12-gauge shotgun wound six hours old, suffered at close range and involving the left lower extremity in the supracondylar area. The patient was quite pale and had an actively bleeding wound on the anteromedial surface of the supracondylar region of the left thigh, measuring approximately 6 cm in diameter. There was no wound of exit. The patient's blood pressure was 90/50, with a pulse rate of 120. The leg distal to the wound was cold, pale, with complete anesthesia, loss of motor power, and no palpable pulses. X-rays revealed a comminuted supracondylar fracture of the left femur with extensive amounts of lead buckshot present in the bone and soft tissues. The patient was taken immediately to surgery, where transfusions were begun and the wound inspected under general anesthesia. A three-inch segment of distal femoral artery was found to be completely destroyed. A femoral arteriogram demonstrated the artery to be patent down to the level of injury *(Figure 1)*. The treatment of choice at this point was felt to lie between a primary above-knee amputation or attempted arterial reconstruction of the limb.

Because of the patient's occupation and his need for a very serviceable limb, it was felt desirable to make an attempt to save the limb, realizing that even if only part of the limb were saved, we might be able to fit the patient later with a below-knee prosthesis rather than an above-knee prosthesis. The wound was therefore radically debrided, sacrificing the entire distal end of the vastus medialis and portions of the vastus intermedius; approximately one inch of bone length was sacrificed and shotgun wadding was curetted from the medullary canal. The anticipated vascular repair would require that the limb be fixed rigidly and this was accomplished with a tibial bolt and parallel plates. The wound was then closed loosely, leaving an area of skin loss open at the point of the entrance wound. A bypass Teflon graft was then utilized to bypass the contaminated portions of the wound. The graft extended from the femoral triangle to the popliteal artery within one-half inch of its trifurcation into the anterior tibial, posterior tibial, and peroneal arteries. Upon release of the arterial clamps, improvement of the color of the extremity was noted immediately and within an hour palpable pulses were present in the foot. Tetanus toxoid, 0.5 cc, was administered and the patient started on intravenous penicillin (5,000,000 units per day) plus

Modification of the usually accepted principles of open fracture care is necessary when an associated vascular injury is present. Synthetic prostheses are valuable in cases of extensive vascular injury involving both arteries and veins.

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Figure 1. Arteriogram showing fracture, extensive buckshot and level of arterial injury.

Chloromycetin, one gram per day. No gas antitoxin was utilized. A total of seven pints of blood were needed during the operative procedure and two additional units were given the following day. Although the patient had a mildly febrile course for several days, within ten day it was possible to apply a split-thickness skin graft over the original entrance wound. All wounds then healed per primam within two weeks.

Discussion

Nearly four centuries ago, medical history reveals that Ambrose Pare successfully arrested a profuse hemorrhage from the common carotid artery. Two hundred years later, it is reported that "Mr. Holloway repaired the first arterial injury," and then in 1896, Murphy performed the first successful end-to-end arterial anastomosis (invagination technique). In 1900, Carrel and Guthrie developed a suture technique for vascular repair and seven years later, Lexer used a vein graft to bridge an arterial defect. A review of the vascular injuries incurred during World War II revealed that traumatic arterial injuries were treated mainly by ligation, with an over-all amputation rate of 40.3 per cent. It was during the Korean War that primary vascular repair was established as the treatment for acute vascular injuries. The most common causes of peripheral vascular injuries involving the lower extremities are:

1. missile injuries (gunshot) shotgun
2. sharp instruments such as knife, glass, etc.
3. blunt trauma (auto accidents, crush injuries, fractures)

In the performance of primary vascular repair, one of the most important factors in determining the eventual outcome is the lag in time from injury to surgery. Opinions vary as to the maximum time limit, stated as being from six hours to frank gangrene. But the crux of the problem is a consideration of the functioning collateral circulation that is difficult to ascertain at the time of the original evaluation of the wound. It has been stated that irreversible muscle changes occur in six hours but this is in direct ratio to total ischemia. If the extremity is intact (that is, not completely severed), the extremity should be splinted before transportation to a hospital is undertaken. As nearly as possible, the patient should be kept warm and the extremity maintained at room temperature. The extremity should be kept in a horizontal position and gross hemorrhage controlled by direct pressure if possible. The tourniquet should be applied only for short periods of time.

Fixation of fractures, when and if present, and reduction of any dislocation should be carried out first, followed by debridement and irrigation. Obviously, the larger the injury the greater the chance that the collateral circulation will be damaged and, likewise, collateral circulation will be further jeopardized with more extensive debridement. It must be borne in mind that infection is not tolerated in the presence of grafts. Heparinization depends upon the severity and the type of associated injury, but in general we employ Heparin in this type of peripheral vascular surgery. In the repair of major vessels, it is established that most failures are due to a faulty technique. If infection is anticipated, a very loose closure should be employed initially. If a thromboendarterectomy is all that is required, a transverse incision is the one of choice as it produces less constriction and is twice as strong. A lateral repair of an injured vessel can be used only in clean-cut vessels. When a simple end-to-end anastomosis is all that is required, it is imperative that the injured segment be completely excised. If a large defect has to be bridged, it has been shown that crimped preclotted Dacron is recommended for the iliacs and common femoral arteries; whereas, vein grafts are preferred where feasible, due to better resistance to infection and thrombosis. Ligation of arteries is reserved only for minor vessels or extenuating circumstances. In severe trauma to the lower extremity, resulting in vascular injury, it has been shown that

the amputation rate, if the vessels are not repaired, are as follows:

	Per Cent
Common iliac	47
Femoral	53
Anterior and posterior tibial	69
Popliteal	73
Anterior tibial	17
Posterior tibial	33

In general, it is recognized that primary repair is the procedure of choice for restoring vascular continuity. Accurate diagnosis is best obtained with definitive arteriography in the operating room.

Szilagyi believes that any gain beyond a year is valuable enough to warrant surgical intervention. The choice between Dacron prostheses and autogenous vein bypass grafts in femoral-popliteal reconstructive arterial disease is well authenticated. However, the ideal situation does not often present in the management of acute peripheral vascular injuries of the lower extremities and one is forced to use a Dacron prosthesis at times. If there is a possibility to salvage only part of the lower extremity, it probably is worthwhile, as Robb pointed out that with a below-knee amputation, the patient has a better balance and extremity with which he can easily handle a prosthesis. He can more easily get in and out of bed. It is possible for him to shave or move about the room with one knee on a chair. Phantom pain is much less than with an above-knee amputation.

Follow-Up

This patient established bony union within six months and was able to return to his normal chores, farming and feeding livestock and running heavy farm equipment. The knee could be extended completely but could be flexed only about 45 degrees. No attempts was made to increase this amount of knee flexion because it was feared that this might kink the arterial graft in the popliteal region *(Figure 2)*. A bounding posterior tibial and dorsalis pedal pulse was present for the next 19 months; at which time within three days after having been examined, the patient suddenly noted a vague change in sensation in the leg and foot. At this time, the pulses were found to be absent and the foot was definitely cooler than the other side. There was no pain in the foot or leg. The arterial tree was explored with Fogarty catheters and a pulse returned to the foot for a few hours and then again disappeared. The patient's foot nonetheless remained comfortable and showed no signs of impending gangrene. Subsequently, the patient was allowed



Figure 2. Arteriogram several weeks later demonstrating the excellent flow and the type of internal fixation used.

gradual increase in activity and at present is again doing all of his normal duties without evidence of intermittent claudication, even though the pulse is no longer palpable. It is felt that the patient's age has allowed him to establish sufficient collateral circulation to compensate for this late complication.

The natural history of severe arterial injury to the lower extremity is reviewed in this paper, and the necessity to modify established basic principles of wound care in the presence of combined orthopedic and vascular injuries is discussed.

An illustrative case is presented, wherein a successful outcome has precluded the need for amputation and resulted in a productive working member of society.

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The Short Leg—

Equalization of Leg Length Discrepancies

H. O. MARSH, M.D.,* *Wichita*

A PERPLEXING PROBLEM encountered in childhood orthopedics is the equalizing of leg length discrepancies, due to trauma, birth defects, polio, or of congenital or idiopathic origin. It would seem obvious in most cases, that lengthening the short leg would be the desirable procedure. By this method, normal height of the child would be maintained. In our society of ever taller individuals, height has become socially desirable; indeed, no one wants to be short *(Figure 1)*.

Almost from the beginning of orthopedics, orthopedists have been intrigued with the idea of lengthening the short leg to match the longer. Unfortunately, the various ingenious methods devised for lengthening the short leg often resulted in complications such as nerve paralysis, vascular insufficiency, muscular damage, pressure ulcers, infections, nonunions and malunions of the osteotomy site. These disasters were so common that until recently, orthopedic reviews of the problem concluded with dire warnings which forced general abandonment of this approach.

In the 1930's, Phemister described and popularized the correction of leg length discrepancy by an epiphyseal arrest of the longer leg. This is basically a slowing down of the rate of growth, resulting in decrease of final leg length. This remains the most widely used method of leg length equalization. In this procedure, the epiphyseal line is curetted and a bone graft is placed across the epiphyseal plate to stimulate bony fusion. Usually, the lower femoral or the upper tibial epiphyseal line (or both) of the good leg are so treated, depending upon the magnitude of the discrepancy. The result, when growth has been completed, is an individual of decreased stature. For example, if a discrepancy of four inches had been present and an epiphyseal arrest carried out at the proper time on the longer leg, the growth of this normal leg would ultimately be four inches less than its normal potential. The child who would have been five feet, ten inches tall would reach an ultimate height of five feet, six inches.

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This method has certain obvious advantages and disadvantages. The principal advantages are the relative simplicity of the surgery and freedom from major complications. The major disadvantages are: (1) The child's height is decreased—generally an undesirable situation. (2) Surgery is carried out on the healthier, more normal leg. Parents and patients sometimes refuse to allow an operation on the good leg, reasoning that they do not want to risk damage to the good extremity. (3) Another serious objection is the lack of accuracy. The results depend upon several educated predictions. Timing of the procedure is based on a guess as to the ultimate height of the particular child, based on height of the parents and of the other children. Another crucial prediction is the remaining amount of growth in the epiphyseal plate. Here one must take into account the child's age, sex, and present height based on national averages. For this purpose, there are charts which are "reasonably accurate" but which always reflect averages and not necessarily the particular growth of the child under consideration. This method results in frequent undercorrection and occasional overcorrection. The surgeon's natural tendency is to be cautious, and any error tends to be on the side of undercorrection. If surgery is done too early, the handicapped leg is too long; and if the surgeon procrastinates, the discrepancy cannot be corrected.

These problems underscore the need for a safe, accurate method of lengthening the short leg, main-

The W. V. Anderson method of leg lengthening has been presented. The method is safe and avoids the main drawback of epiphysiodesis, which is the ultimate shortening of the individual's height. The American method is applicable to almost all types of leg length discrepancies. The leg can be lengthened in early childhood and again in adolescence if a further discrepancy in growth occurs.

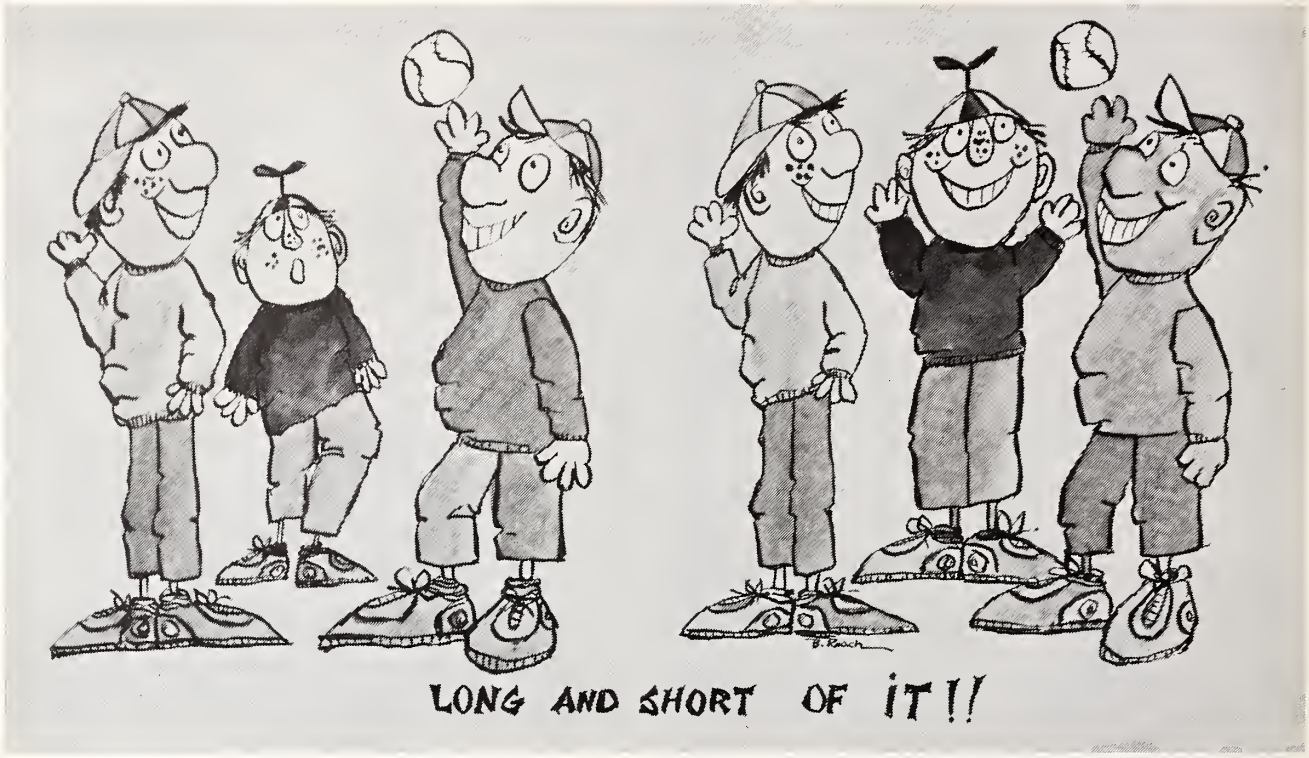


Figure 1

taining the child's normal stature and avoiding jeopardizing the better leg. The W. V. Anderson method of *tibial* lengthening, within certain limits, fulfills this need. There still remains this unsolved problem of how to lengthen the femur when the discrepancy or abnormality is such that this is necessary. The Anderson method has been used safely and effectively by the originator in more than 200 cases and has been relatively free of complications (I know of no surgical procedure, orthopedic or otherwise, entirely free of complications). In addition, Sherman Coleman, at the University of Utah, has treated more than 50 cases by this method without experiencing a major complication. There obviously are limits to the length that can be gained during one session, but it is possible to gain two inches.

The principal disadvantages of the Anderson method are: (1) the prolonged hospitalization required, (2) occasional delayed union of the tibia through the osteotomy site, and (3) more rarely nonunion of the tibia. Frequently, superficial skin infection occurs about the four transfixion pin holes.

In the past one and one-half years, I have used the Anderson leg lengthening procedure successfully on six children. As this procedure is probably of some interest to all branches of medicine, a brief outline of the cases, technique, and results are presented.

Two inches proximal to the level of the ankle mortise, a piece of fibula one inch long is removed. The lateral malleolus is then stabilized to the tibia with a transfixion screw to prevent ankle distortion from the forces exerted during the lengthening process. Four heavy Steinmann pins are inserted in parallel fashion, transversely through the tibia; two are in the proximal one-fourth, and two in the distal one-fourth *(Figure 2)*. The Anderson lengthening device is attached to these pins and is completely external. A buttonhole incision is then made at the midpoint of the subcutaneous surface of the tibia, and multiple drill holes are made through the bone, disturbing the periosteum as little as possible.

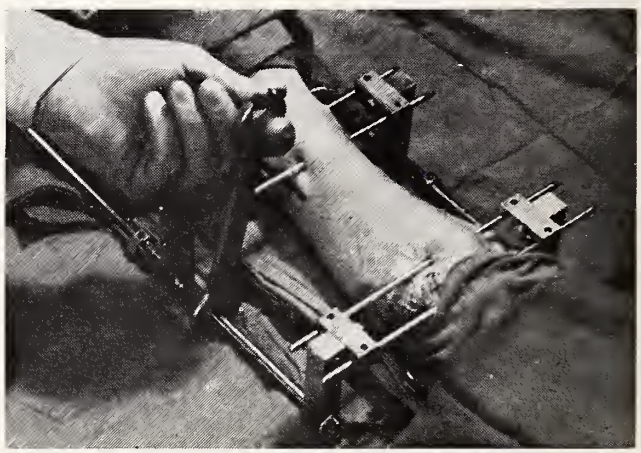


Figure 2. Turning the distraction nut on the threaded side bar to lengthen tibia $\frac{3}{16}$ inch in surgery.

This point is important as bone regrowth between the distracted tibial fragments takes place within the intact periosteal sleeve. After the tibia has been weakened sufficiently, the bone is fractured manually with a sharp blow. The fragments are immediately distracted three-sixteenths of an inch *(Figure 3)*. An additional one-sixteenth of an inch is gained daily by turning the nut on each side bar (which has 16 threads to an inch) until the desired length is obtained. The child experiences little discomfort during the daily distraction, and it has never been necessary to give narcotics or analgesics at this time. If weakness of the dorsiflexors of the toes or numbness in the distribution of the peroneal nerve occurs, the lengthening process is discontinued for a day or two and the peroneal nerve is given time to accommodate to the stretching. These symptons then promptly disappear, and at this time, lengthening can be resumed at the usual rate.

Two inches can be gained during one lengthening session *(Figure 4)*. This gain can be accurately ascertained from the daily progress notes, or the tibias can be measured by x-ray. The child must be hospitalized during the lengthening procedure, but is allowed up and about in a wheelchair.

After the desired leg length is achieved, the leg is placed in a long plaster cast, incorporating the four pins. After the cast has hardened, the external distraction devise is removed. If the device is removed prior to this crucial time, some loss of length occurs. The child is discharged from the hospital on crutches. The leg must be protected from weight bearing for a minimum of twelve weeks.

This method makes possible the equalization of leg lengths in early childhood, and if discrepancy recurs with growth, the lengthening may be repeated several years later. The Anderson leg lengthening procedure is applicable through about 16 years of age; but the older the child, the more likely a delay in bone healing. The method is not applicable to adults.

The method is safe, but it should not be utilized for length discrepancies of less than one inch. This is true for all methods of length equalization. Discrepancies of less than one inch are best treated with shoe lifts.

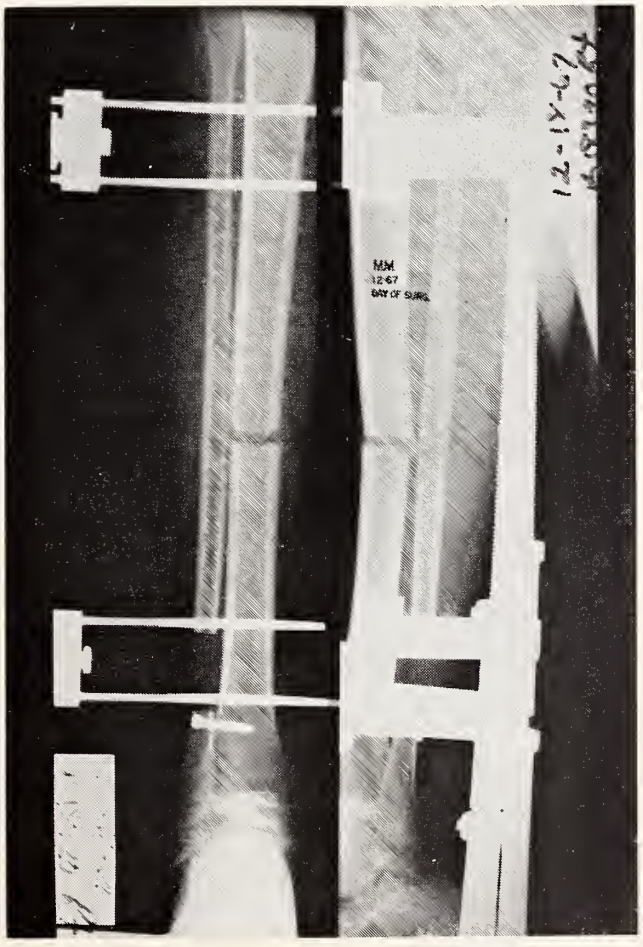


Figure 3. Case No. 3. Car accident with traumatic closure of the distal femoral epiphysis. X-ray in surgery showing 3/16 inch initial lengthening.



Figure 4. Case No. 3. Casting discontinued 12 weeks after surgery. Good callus within the periosteal sleeve. 1½ inch length obtained.

TABLE 1

Case	*Date of Surgery*	*Age*	*Sex*	*Etiology*	*Amount Lengthened (Cms.)*	*Time in Cast* WEEKS	*Other Procedures*	*Complications*
1	6-15-67	13	M	Polio	3.1	16	1964: Tibial epiphyseal arrest age 9 (staples) 1966: Repeat femoral & tibial arrest (previous surgery failed)	None
2	8-3-67	9	F	Idiopathic	2.6	24	None	Fractured leg playing football in cast
3	12-18-67	14	M	Trauma	4.5	12	1. Pre-lengthening: femoral osteotomy for severe knock knee 2. Post-lengthening: lower femoral and upper tibial arrest	None
4	6-3-68	12	F	Polio	4.1		1966: Lower femoral and upper tibial arrest	None
5	7-8-68	6	M	Idiopathic	3.7		None	None
6	7-30-68	13	F	Trauma	2.5		7-30-68: Correction of titial plateau tilt	Temporary weakness dorsiflexors of toes

This method of tibial lengthening can be used for leg discrepancies of almost all descriptions. My six cases include polio, trauma and, idiopathic or congenital conditions. One case currently under consideration is a child who sustained a compound fracture in early childhood. This fracture finally healed after prolonged drainage, and the child has a one and one-half inch overgrowth of the previously infected leg.

One lighthearted, hypothetical question: If a professional basketball player six feet, ten inches tall can make $25,000 per year, how much money could the same player make if both legs were lengthened two inches and he were seven feet tall?

And more seriously, simply to illustrate how this procedure does intrigue short people in our present society, a nurse of very short stature approached me one day with the plea to lengthen both her legs so she would be—shall we say—more competitive!

My cases and results to date appear in *Table 1.*

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Prognosis:

—*Bell's Palsy*

R. T. FIRKINS, M.D.,* *Wichita*

THE LONG COURSE OF the facial nerve through a narrow bony canal makes it unique among motor nerves. Probably because of this it is more often paralyzed than any other nerve.[1] The grotesque resulting disfigurement is increased by smiling and laughing, and can be catastrophic, especially to a young girl.

Charles Bell presented an essay on the nerves of the face in 1829. He discovered the distinction between the sensory innervation of the face by the fifth nerve, and the motor innervation by the seventh. His name was first applied to all cases of flaccid paralysis of the facial nerve, but now Bell's palsy is applied only to cases of simple edema of the nerve in its bony canal.

The diagnosis of Bell's palsy is made by the sudden onset of unilateral flaccid facial paralysis, without middle ear disease, congenital cholesteatoma, tumor, or trauma. The pathologic lesion is edema of the nerve. Although the immediate cause of the edema is obscure, the events that follow seem determined by the narrowness of the bony canal. A conduction block is produced as well as lymphatic and venous obstruction. In about 20 per cent of cases the pressure on the nerve results in axon degeneration and varying degrees of disfigurement.

Medical Treatment

Reassurance is important since many patients believe they have polio or have had a stroke. Taverner[2] recommends care of the eye and massage of the face with the fingertips. Analgesia should be used if pain is present. The use of vasodilators such as nicotinic acid seems logical in early cases. Treatment with steroids is of doubtful value.[2] As motion returns, the patient should make faces in a mirror several times a day.

Surgical Treatment

The rationale of decompression of the vertical portion of the facial nerve is to arrest axon degeneration and to promote regeneration.[3] The problem is to differentiate early those cases which recover spontaneously from the approximately 20 per cent who do not, so that needless surgery will be avoided in the former and timely surgery will be done in the latter.

The nerve excitability test is believed to give the earliest dependable prognosis.[4–6] The level of current required to produce twitching of the face muscles on the affected side compared to that required on the normal side indicates the condition of the nerve. The Hilger Facial Nerve Stimulator[7] applies a stimulating current which has a square wave of negative polarity at a frequency of six cycles per second. The current may be varied from 0 to 25 milliamperes. The current is applied with a ball-end probe to the skin over the stylomastoid foramen. The intensity is increased until the facial muscles just twitch, and the current is read from the dial. An equal response of the affected and unaffected sides at the same current setting indicates a physiologic block. Response at higher current levels on the affected side than the normal side indicates partial degeneration of axons. Absence of response on the affected side indicates complete nerve degeneration. The test is easy to perform and causes no great discomfort to the patient. The test is of value from three days after the onset of paralysis, and therefore gives information before electromyography or strength-duration curves.[6] If the nerve excitability remains normal on serial testing, recovery can be anticipated and the patient can be given qualified reassurance. If the excitability of the nerve is lost, immediate decompression is indicated. If the nerve excitability progressively decreases, a decompression is indicated. The importance of serial testing is obvious if progressive loss of excitability is to be detected.

The prognostic value of the nerve excitability test is supported by our cases. The test should be performed serially in all cases of Bell's palsy, and surgical decompression of the nerve should be done in selected cases after weighing all the clinical evidence.

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Results

A total of 21 cases of Bell's palsy have been seen since February 1966. All were given a complete otologic evaluation. Tear and taste tests were done, as well as the nerve excitability test. Three cases were surgically decompressed. One was operated upon two months after onset, and two three months after onset. One, a ten-year-old girl, recovered 100 per cent function in three months after decompression. She showed signs of face movement as soon as she recovered from the anesthetic, much as one of Sheehy's[8] cases did. A 48-year-old woman showed only slight weakness of the corner of the mouth after one year. A third patient has over 50 per cent return and is still being followed. All three surgically treated patients had no response to the Hilger Nerve Stimulator on the affected side preoperatively. A fourth patient had no response to the nerve stimulator but refused surgery and was lost to follow-up. A fifth patient without response to nerve stimulation was first seen seven months after onset. It was felt that it was too late for decompression and a tarsorrhaphy was done.

The remaining 16 patients (76 per cent) all had equal response to nerve stimulation on each side, and all recovered excellent function. All received reassurance and physiotherapy. Some also were treated with vasodilators and steroids.

Summary

Experience with 21 cases of Bell's palsy is presented. The nerve excitability test was performed as part of the work-up in all cases. In every case where nerve excitability was retained, the patient was reassured with a fair degree of confidence, and in every case function of the nerve returned. The cases which had no response to stimulation were all first seen at least two months after onset. The three cases in whom decompression was performed have shown encouraging results. The importance of serial testing is emphasized. We feel more information is needed on cases in which decompression is done early (within the first two weeks) and in patients with loss of excitability who refuse surgery and who can be followed up over an extended period.

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Merry Christmas

and a

Happy New Year

The Journal of the
Kansas Medical Society

Scleroderma

Some Psychiatric Aspects of Progressive Systemic Sclerosis

A. DALE GULLEDGE, M.S., M.D.,* *Wichita*

Introduction

SCLERODERMA IS A MEMBER of a group of collagen diseases which affects predominantly connective tissue, and is a chronic disease of unknown etiology. Characteristically, the majority of patients are afflicted between the ages of 30 and 50 years, women being affected approximately twice as frequently as men. All organ systems may be affected and any sign or symptom may occur referable to the organ involved—including the central or peripheral nervous systems.

When reference is made to central nervous system involvement, the resulting symptoms and signs are usually thought of as results of neurological defects due to multiple small areas of ischemia or occlusion;[1] such problems as paresis, peripheral nerve deficits, convulsions, can occur with progressive systemic sclerosis. Although emotional complications might be expected, the psychiatric aspects of this disorder have been largely ignored. This seems somewhat surprising when one considers such a condition can result in severe restriction of physical activity due to such problems as sclerodactylia with Raynaud's syndrome, myocardial failure or pericardial disease, pulmonary symptoms due to pulmonary fibrosis cysts or bronchiectasis, muscle weakness, etc. Since this is a disease which occurs in the productive, active ages, when working and activity are frequently used to relieve anxiety and depression, one wonders if psychiatric problems do occur in patients significantly afflicted with scleroderma. Are psychiatric factors related to organic brain damage, or medicine used in the treatment of scleroderma, or are they attributable to psychological factors such as a significant previous personality disorder? It was with these thoughts in mind the first part of this study was done.

Method

Seventy-three cases of progressive systemic sclerosis (scleroderma) were reviewed. None of these were seen by the reviewer; all had been seen by physicians with or without the consultation of a psychiatrist. In 47 instances no mention was made of a psychiatric problem; in 26 patients, psychiatric problems were recognized; however, only in 12 cases was the history detailed enough to clearly sort out the psychiatric problems from organic symptoms caused by scleroderma. When psychological testing was done, it was reviewed.

At least one out of three patients with scleroderma will have recognizable psychiatric symptoms. The psychiatric problems seemingly will occur in people who have had significant emotional problems *prior* to the onset of their scleroderma, and characteristically manifest their emotional problems in the form of depression, anxiety, or tension states. If the psychiatric symptoms occur *after* the onset of scleroderma symptoms, it is suggested that they will most frequently be recognized simply as anxiety symptoms. Psychotic reactions are not frequent. Overt depression, perhaps, appears more frequently in males than females after the appearance of initial organic symptoms of scleroderma.

The role of drugs in organic brain problems associated with scleroderma is an unknown factor at this time and will need to be further evaluated in the future. Some speculative theories are presented as to why some of these psychiatric problems develop in patients with progressive systemic sclerosis.

Results

In 47 scleroderma patients without recognizable psychiatric symptoms by their physicians, 40 of these were female, seven male. Of the 26 scleroderma patients with overt psychiatric problems, seven were male, 19 female. Thus, approximately one out

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TABLE 1

PSYCHIATRIC PROBLEMS NOTED IN 26 PATIENTS WITH SCLERODERMA

Patient	*Age*	*Sex*	*Diagnosis*
RB	30	F	Psychoneurosis
KK	41	M	Chronic anxiety state; chest wall pain
JB	44	F	Neurotic depression; tension headache
MI	66	F	Schizoid personality; acute anxiety attack
ED	44	F	Nuchal tension
LG	42	F	Anxiety-tension state
PF	52	F	Anxiety state; globus hystericus
CB	35	F	Neurosis
HL	58	F	Neurotic depression; anxiety, chronic
RW	27	F	Depression
RS	55	M	Depression; chronic anxiety
HJ	63	F	Depression; chronic anxiety
HD	56	M	Psychogenic impotence; hyperventilation syndrome
AS	78	F	Chronic tension
TD	66	M	Chronic tension state
DM	33	F	Chronic tension state
RM	38	F	Chronic tension state
EM	52	F	Hypochondriasis
CK	57	M	Chronic tension state
LF	39	F	Chronic tension state
RM	33	F	Schizophrenic reaction
TT	35	M	Functional fatigue state
EM	70	F	Tension headache; anxiety state
FM	54	F	Functional abdominal distress
JP	66	F	Anxiety attack
LG	63	M	Depression; anxiety state

of every three patients with scleroderma had recognizable psychiatric problems. In 26 of these patients *(Table 1),* ten had recognizable symptoms of anxiety, six had depressive features, and seven had "tension states."

Only in 12 cases was there enough history to determine the relationship between the onset of scleroderma and recognizable emotional problems *(Table 2).* In nine of these patients the emotional problems *antedated* the initial symptoms of scleroderma; in the remaining three patients who developed their psychiatric complaints *after* their scleroderma symptomatology, none were depressed and all had recognizable anxiety features. In the two patients who had previous duodenal ulcers, depressive symptoms developed *after* their diagnosis of scleroderma, both of these patients being men. Only one patient became psychotic *after* the diagnosis of scleroderma was made, and she had been diagnosed as a schizoid personality well before the onset of her progressive systemic sclerosis.

In those patients who had a Minnesota Multiphasic Personality Inventory (MMPI) *(Table 3),* when significant elevations occurred, they tended to be on the hysterical, depressive, or hypochondriacal scales—or on the neurotic end of the MM profile; the hysterical and depressive scales being the most frequently elevated.

Discussion

Keeping in mind that some significant psychiatric problems were possibly missed and that there were some probably mislabeled psychiatric diagnoses made by the physicians caring for these patients, and recognizing the defects of retrospective studies, one can perhaps make some cautious conclusions. It seems reasonably clear this is a collagen disease which does not usually cause psychiatric problems *de novo,* but merely brings to the physician's attention a patient who has had past significant emotional problems. However, this is a condition which can restrict activity in a productive period of life and can produce psychiatric problems in a previously healthy person. For example, CB is now a 35-year-old secretary-stenographer who developed her initial scleroderma symptoms of Raynaud's syndrome and sclerodactylia at the age of 29. Subsequently, she could not work as she had in the past to help support her three children and as her systemic sclerosis progressed, she developed a hyperventilation syndrome. Activity is one means of alleviating anxiety and depression and is commonly used to reduce the stress of everyday living. If it is denied people who rely on work and activity, it becomes not only a physical threat to the patient but a psychological one also.

In all three instances anxiety was the predominant problem if emotional symptoms developed *after* the onset of scleroderma. Speculatively, this suggests these patients sense and perceive an impending threat to their personality integrity with the onset of their scleroderma—most likely in the context of an altered social environment. That is, they feel others will regard them as different (as their view of themselves changes), and that they will be looked upon as non-productive, useless people. Instead, often their appearances are frequently altered, and they do look different, and they cannot "do" like they used to; hence, they have impaired ability to unconsciously repress the conflict regarding their self-worth and they become anxious.

Interestingly enough, both men who previously had duodenal ulcers before their scleroderma became depressed *after* their collagen disease had been diagnosed. It is believed by many that the ulcer patient is one who is basically dependent, and that the

TABLE 2

RELATIONSHIP OF PSYCHIATRIC SYMPTOMS TO THE ONSET OF SCLERODERMA SYMPTOMS

Patient	*Age*	*Sex*	*Symptoms*
HJ	63	F	Life-long history of multiple phobias; long history of anxiety; depression preceding her first symptoms of acrosclerosis.
RB	30	F	Obesity problem preceding onset of Raynaud's phenomena, psychoneurotic symptoms followed.
KK	41	M	Cancer phobia, chest wall pain anxiety state after scleroderma.
JB	44	F	Migraine headaches, compulsive personality preceded tension headaches which coincided with arthritic symptoms; subsequently followed by a neurotic depression.
RS	55	M	Previous history of duodenal ulcer; scleroderma developed, followed by overt depression and anxiety.
RW	27	F	Excessive grief reaction from a divorce; arthritic symptoms two years later, then followed by a depression.
HL	58	F	Depressive symptoms, chronic, nine years preceding onset of scleroderma-caused dysphagia.
HD	56	M	Duodenal ulcer preceded symptoms of dysphagia by 13 years; depression followed diagnosis of scleroderma.
CB	35	F	Raynaud's phenomena at age 29, then following tanning of face with thickening of skin, developed symptoms of anxiety attacks.
PF	52	F	Globus hystericus, "hot flashes" following a hysterectomy at age 32, tension headaches preceded acrosclerosis and dysphagia by 20 years; after acrosclerosis, anxiety state developed.
LG	42	F	Anxiety-tension state after diagnosis of scleroderma.
MI	66	F	Schizoid personality preceded diagnosis of scleroderma; subsequently developed acute psychotic depression with paranoid features.
ED	44	F	Nuchal tension, approximately the same time the diagnosis of scleroderma was made.

TABLE 3

MINNESOTA MULTIPHASIC PERSONALITY INVENTORY (MMPI) PROFILES

Patient	*Age*	*Sex*	*Q*	*L*	*F*	*K*	*HS*	*D*	*HY*	*PD*	*MF*	*PA*	*PT*	*SC*	*MA*	*SI*
HJ	63	M	42	46	49	44	76*	76*	72*	62	45	68	70*	56	58	62
RW ...	27	F	52	53	49	73*	64	61	70*	66	39	65	62	64	53	45
HL	58	F	46	53	67	42	94*	76*	34*	61	53	68	60	81*	68	47
ED ...	44	F	50	53	46	59	60	48	63	50	53	45	55	56	53	54
MI** .	66	F	48	53	65	46	94*	84*	80*	77*	57	62	80*	82*	62	69
JB	44	F	45	46	49	35	50	53	58	33	51	36	40	36	53	52
RB	30	F	50	50	58	50	66	76*	77*	66	53	45	57	59	63	58

* Significant elevation.

** Later developed an acute paranoid state.

Q = Cannot say; LFK = Validity Scales; HS = Hypochondriasis; D = Depression; HY = Hysteria; PD = Psychopathic-Deviant; MF = Masculinity-Femininity; PA = Paranoid; PT = Psychoasthenia; SC = Schizophrenia; MA = Mania; SI = Social Introversion.

ambitious, aggressive, hard-driving attitudes which are seen on the surface are really reactions to cover up underlying dependency needs. These two men appear as instances when anger was unconsciously introjected causing a depression. They could not escape being what they unconsciously had strived to avoid—dependency because of physical and physiological limitations imposed on them by their scleroderma.

The number of MMPI's are much too small to make any permanent opinions, but it is interesting to note them as they might relate to scleroderma patients. It is established that hysterical patients frequently use past or current organic symptoms as templates for psychological symptoms. Not infrequently scleroderma patients have muscle weakness, atrophy, arthralgias, arthritis, dyspnea, etc. from their scleroderma. The available MMPI's on these patients with diffuse organic involvement, and who also have concomitant psychiatric problems, suggest these people are overly concerned about bodily functions and physical health. Certainly many of these patients have multiple system involvement, causing multiple organic symptomatology; but the caring physician should be alert to the fact that one out of every three of these patients will also have psychiatric symptoms; moreover, a good portion of them will have multiple psychiatric symptoms such as fatigue, weakness, pain, etc. Hence, the difficult job for the physician with these patients is to carefully decipher out the organic problems from the psychological ones and appropriately treat each of them.

Not documented in this paper was the variety of medicines used in the overall treatment of these patients who had scleroderma. These included such drugs as steroids, analgesics, and anti-inflammatory agents. There were no instances which clearly documented that drugs, *per se,* were responsible for the development of significant psychiatric symptomatology, and this should be thoroughly investigated and determined in the future.

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PREPARATION OF MANUSCRIPTS FOR THE JOURNAL

Exclusive Publication: Articles are accepted for publication on condition that they are contributed solely to this Journal. Publication elsewhere will be subsequently authorized in the discretion of the Editor.

Correspondence: Address all correspondence relating to publication of scientific papers to the Managing Editor.

Manuscript: Type double spaced, on white paper, 8½ by 11, with one-inch margins at the top, bottom, and right, and 1½ inches on the left. Submit the original. Call drugs by their generic names. The trade names can be added, in parenthesis, if they are considered important. Keep one copy of the paper.

Footnotes and References: Use the style of the *Quarterly Cumulative Index Medicus* published by the American Medical Association, which requires, in the order given: name of author, title of article, name of periodical, with volume, pages, month—day of month if weekly—and year as follows:

4. Doe, J. E.: What I know about it. *J. Kans. M. S.* 54:717-719, December 1954.

Include only those references specifically referred to in the text.

Reprints: An order slip for reprints with a table covering cost will be sent with the galley proof to each contributor.

Illustrations: A reasonable number of illustrations are allowed without cost to the author. Place the name of the author on the back of each illustration, table, etc. Submit clear and distinct, glossy photographs. Make drawings in black ink on white paper. Attach a slip of paper to the bottom of the illustration with the author's name, identification of article, and appropriate legend. Identify the top of the illustration. Photographs and drawings will be returned if so requested.

Under ordinary circumstances articles are scheduled several months in advance. Notice will be given the contributor when the article has been accepted and again before publication.

Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.



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Newsletter

Drug Information Sources

On September 13, 1968, after a year of study, the Health, Education and Welfare Task Force on Prescription Drugs published its second interim report and recommendations. This report is based on the consensus of opinions of leading clinicians, scientists, and medical educators. The report covers many aspects of prescription drugs ranging from the research efforts of manufacturers to improper use by physicians. The report condemns the "widespread reliance by prescribers for continuing education upon the promotional material distributed by drug manufacturers," and recommends that medical schools, county medical societies and pharmacy and therapeutics committees take the "responsibility for providing continuing education for M.D.'s on rational prescribing." Rational prescribing is defined as the right drug for the right patient, at the right time, in the right amounts, with due consideration of relative costs.

"Experts" are reported as stating that the "greatest deficiency" of the average M.D. today is the lack of knowledge and sophistication in the proper prescribing of drugs. The report further indicates that the problem arises, in part, because the physician must (1) choose from a large number of "me too" or duplicative products; (2) accept advice "biased or unbiased" from detail men, advertisements and other forms of promotion (it is estimated that the major pharmaceutical companies employ about 20,000 detail men and spend some $3,000 per physician on promotional activities); and (3) make decisions concerning the evidence and claims for drugs when he has neither the training, experience nor time.

In view of the task force report, we feel that there are two areas which need further discussion for our readers. One concerns sources where the busy practicing physician can obtain authoritative information about drugs and the other concerns the controversy over whether physicians should prescribe by generic or brand name. The latter will be discussed in a future issue of this newsletter.

Sources of Information About Drugs

New Drugs (American Medical Association, Chicago, Illinois). This book is an attempt by the AMA Council on Drugs to present up-to-date information on drugs which have been evaluated during the previous ten years. An informative general introduction about each class of drugs precedes more detailed information about specific compounds within the group. The book is sold quite inexpensively. The council is composed of the permanent staff of the AMA and a group of academic pharmacologists and physicians who use panels of expert consultants in its drug evaluation efforts. In addition, the Council on Drugs publishes a regular column in the *Journal of the American Medical Association* reviewing individual drugs. This is a critical review and it is published irrespective of the final interpretation of the available evidence.

The Medical Letter on Drugs and Therapeutics (H. Aaron, Editor: Drug and Therapeutic Information, Inc., 305 E. 45th St., New York, New York 10017). The *Medical Letter* is a critical appraisal of drugs, published bi-weekly, in which the editors use a distinguished group of academic consultants. It is in the form of a newspaper which can be put into a looseleaf binder. The information is concise, informa-

tive, conservative, and up-to-date. Evaluations frequently appear shortly after new drugs are made available for general use, the period when pharmaceutical companies make a major promotional push. On several occasions, the *Medical Letter* has pointed out discrepancies between promotional claims and the actual data for meprobamate and pentaerythritol tetranitrate. Their opinions on unwarranted claims were subsequently substantiated by the FDA.

Drugs of Choice (Walter Modell, Editor: C. V. Mosby Company, St. Louis, Missouri). This book, which is published every two years, is a multi-author book. The purpose is to provide the practicing physician with the aid necessary to choose among the many drugs currently available for therapy of specific conditions.

Pharmacology for Physicians (W. B. Saunders Company, West Washington Square, Philadelphia, Pennsylvania 19015). This monthly publication, published under the auspices of the American Society for Pharmacology and Experimental Therapeutics, is a review of the pharmacologic basis for treatment of various disorders. The form is that of a brochure which can be saved in a looseleaf notebook. Sample issues of this publication and the *Medical Letter* were distributed during the Circuit Course last year.

Other sources of information about drugs which usually review fundamental mechanisms of drug action rather than therapeutic applications are: *Pharmacologic Reviews, Annual Reviews of Pharmacology,* and *Advances in Pharmacology.* A bi-monthly journal, *Clinical Pharmacology and Therapeutics,* contains original articles dealing with the effects of drugs in man. This journal also contains reviews which are valuable to the practicing physician who wishes to keep informed of the latest information in modern drug therapy and treatment of poisoning.

Descriptive information about drugs can be found in official and unofficial compendiums such as the *United States Pharmacopia,* the *National Formulary,* the *Modern Drug Encyclopedia* and *Therapeutic Index, Physician's Desk Reference,* and the *American Drug Index.*

And last, but not least, we should not fail to mention this newsletter.

* * *

Although carbamazepine (Tegretol) is an effective drug, reports are accumulating to document its toxicity. When administered in doses of 300-600 mg daily to 192 patients, 12 per cent were noted to have severe side effects; including intrahepatic bile cholestasis and death from aplastic anemia (*Mich. Med.* 67:1066, 1968).

* * *

Clofibrate (Atromid-S), a drug which lowers serum lipids, especially in patients with Type III or IV hyperlipoproteinemia, has been used five years with little evidence of serious toxicity. A recent report (*New England J. Med.* 279:859, 1968), however, indicates that some patients develop elevated plasma levels of creatine phosphokinase which is occasionally associated with serious muscle weakness.

GALLEY PROOF CORRECTIONS

There is sometimes a misunderstanding about changes in an article on the galley proofs and the reluctance of the JOURNAL to make extensive alterations. The reason for this is quite simple and easily understood when one knows all the facts. The article has already been set in type. To make extensive changes requires that the typesetting be done over, at an additional cost which may even exceed the original, because it is slower work to fit pieces together than to set an entire article in type. It is also obvious, when one stops to think about it, that an alteration in the first few lines of a paragraph will probably make it necessary to reset the entire paragraph. This, of course, increases greatly the cost of printing and should be avoided as much as possible. The galley proof is for correction of *errors,* and a rewriting of the article should be done on the original copy before it is submitted for publication.

Law-Medicine Comment

A Model Abortion Statute

M. MARTIN HALLEY, M.D., J.D., *Topeka*

A PREVIOUS COMMUNICATION discussed current proposals for the revision of Kansas abortion laws, which at present consider induced abortion criminal unless necessary or advised to preserve the life of the mother.[1] The Kansas Judicial Council proposal concerns adoption of the Model Penal Code provisions, justifying abortion if there is belief of substantial risk to the physical or mental health of the mother, or that the child would be born with grave physical or mental defects, or that the pregnancy resulted from rape, incest, or other felonious intercourse.[2] The Kansas Medical Society, in a challenging concept, has recommended the removal of medical abortion from the realm of the criminal law, to be supervised through the administrative and professional controls existing in licensed and accredited hospitals.[3] These proposals merit serious and favorable consideration. Both represent substantial liberalization of existing abortion law. The Medical Society approach, granting medical abortion the same status accorded other medical and surgical procedures, would establish leadership in the field of progressive medical-legal legislation for the State of Kansas, which in the past year has already adopted the "Uniform Anatomical Gift Act"[4] and a statute legitimizing the children of heterologous artificial insemination.[5]

The recommended listing of the indications for justified medical termination of pregnancy has caused concern about the possibility of quasi-compulsory termination of pregnancy on the one hand, or legal delay on the other. A general removal of medical abortion from the criminal law would avoid this issue, and would result in the application of essentially identical indications. Conservative medical practice, emphasizing the life and health of the patient, and structured within the controlled hospital environment, would be unlikely to extend the indications for abortion beyond those of the Model Penal Code. However, the complex problem of abortion cannot be completely removed from the criminal law, since certain cases must necessarily be adjudicated. A partial removal therefore appears as the only possible solution, taking the form of exemptions from the criminal statute upon compliance with specified conditions. This results in "justified medical termination of pregnancy."

In view of these considerations, a model statute is presented, realistically incorporating the spirit of the proposals, and consolidating the material presently included in three Kansas statutes. The recent liberalizing legislation in California, Colorado, and North Carolina is reproduced in the appendix for background information.

A model abortion statute is presented, incorporating the spirit of the proposals for the revision of Kansas abortion law, and consolidating the material in present statutes. Criminal abortion is defined and penalties are suggested. Termination of pregnancy by physicians is justified under specified circumstances. Provision is made for consent, residence, and the limitation of liability. Background material is supplied in the appendix, where recent legislation in other states is reproduced.

Comments on the Proposed Model Statute

The model statute justifies the medical termination of pregnancy, if performed by a licensed physician, within a licensed and accredited hospital, and following proper consultation. The procedure in this context is removed to institutional administrative and professional supervision, consistent with state licensing regulations, regulations of the Joint Commission for Accreditation of Hospitals, hospital bylaws and staff rules, and accepted standards of medical practice. Emergency situations in which the required procedure cannot be followed are justified, but are limited to situations believed to be immediately threatening the life or health of the mother. The remote possibility of a justifiable abortion by a person other than a physician is covered in the definition of criminal abortion as "unjustifiable."

Section 1 presents the definition of criminal abortion as "purposeful and unjustifiable" termination of the pregnancy of any woman with destruction of the child, or intent to destroy the child. This definition avoids the ambiguity attending the phrase "live birth" which appears in other recommendations and the Colorado statute. Acts by a woman to induce her own abortion are not excluded. Sub-

stitution of the phrase "of another" for "any woman" could accomplish this result.

Section 2 justifies medical termination of pregnancy under specified conditions, which have been reduced to an essential minimum. Other possible conditions appear in the Judicial Council recommendations, and in the state statutes set forth in the appendix. Such other conditions, for example, might include variations in the method of consultation, a provision that the consultants may not be jointly engaged in private practice, or the limitation of justified termination of pregnancy to a definite period of gestation, as the first 20 weeks. It would seem, however, that the provision requiring professional consultation within a licensed and accredited hospital is sufficient to insure reasonable and proper proceedings.

Section 3 essentially suspends the regulations in an emergency believed to be threatening the life of the mother. *Section 4* specifies the individuals who may consent, so that confusion and possible litigation may be avoided in this area. *Section 5,* requiring a period of residence in Kansas except in emergency, also appears in the North Carolina statute. *Section 6* exempts from civil liability the physicians and hospitals for activities relating to certification, approval, or disapproval of an abortion, when done reasonably and in good faith. The section does not attempt to alter liability arising from negligence or other matters relative to the performance of the procedure. *Sections 7, 8, and 9* are self explanatory. The Kansas statutes recommended for repeal have been discussed in the previous communication.[1]

Finally, attention is called to the Colorado statute 40-2-53, set forth in the appendix. This statute provides that no hospital shall be required to admit any patient for purposes of performing an abortion, or be required to appoint a committee for this purpose, and prohibits recriminatory action against individuals who object to such termination of pregnancy on moral or religious grounds. These provisions are not included in the proposed model act, but could, of course, be incorporated.

Proposed Model Abortion Statute

An act defining criminal abortion; prescribing penalties therefor; justifying the purposeful termination of pregnancy by physicians under specified circumstances; regulating consent; requiring residence; limiting liability of physicians and hospitals; and repealing K.S.A. 21-409, 21-410, and 21-437.

Section 1. Criminal abortion is the purposeful and unjustifiable termination of the pregnancy of any woman with destruction of the child, or with intent to destroy the child.

Section 2. Justification for physicians.

a. A physician licensed to practice medicine and surgery in the State of Kansas shall be justified in so terminating or attempting to terminate a pregnancy, provided that such acts were done (1) within a licensed and accredited hospital, and (2) three persons licensed to practice medicine and surgery in the State of Kansas, one of whom may be the person performing the termination of pregnancy, have certified in writing their belief in the justifying circumstances, and have filed such certificate, prior to the procedure, in the hospital where the procedure is to be performed.

b. A physician licensed to practice medicine and surgery in the State of Kansas shall be justified in advising, counseling, aiding, assisting, or procuring such termination of pregnancy provided that such termination was in good faith intended to be done as specified in subsection 2(a).

Section 3. Justification in emergency.

Notwithstanding other provisions of this act, a physician shall be justified in performing, attempting, advising, counseling, aiding, assisting, or procuring such termination of pregnancy, in an emergency which is believed to be threatening the life or health of the woman.

Section 4. Consent.

A woman not less than 21 years of age, or a married woman not less than 18 years of age, may give her own consent to the termination of pregnancy. If the woman is a minor, or otherwise incompetent, consent may be given by the husband if she is married, by the father or mother if she is single or if she is not living with the husband, by the legal guardian, or by the person or persons standing in loco parentis to such minor or incompetent.

Section 5. Residence.

Termination of pregnancy under this act shall not be recommended or performed unless the woman shall have resided in the State of Kansas for a period of at least four months immediately preceding such procedure, except in the case of an emergency.

Section 6. Limitation of Liability.

There shall be no liability on the part of, and no action for damages shall arise against any physician or any hospital for any act, statement, proceeding, or recommendation, made or undertaken reasonably and in good faith under the terms of this act, relating to certification, approval, or disapproval of the termination of a pregnancy.

Section 7. Penalties.

a. Criminal abortion shall be a class. . . . felony.

b. The attempt to perform a criminal abortion, whether or not a pregnancy actually existed, shall be a class. . . . misdemeanor.

c. Death of the woman resulting from a criminal abortion or from the attempt to commit a criminal abortion shall be a class. . . . felony.

(The Kansas Judicial Council has recommended that crimes of like gravity be classified within categories, and that a single statutory penalty be provided for all crimes within each class.)[6]

Section 8. Definitions.

a. "Pregnancy" means that condition of a woman from the date of conception to the birth of her child.

b. "Child" means the product of conception at any stage of development.

c. "Emergency" means a situation in which the life or health of the woman is believed to be in danger, and where delay is believed to be detrimental.

d. "Accredited hospital" means a hospital accredited by the Joint Commission on Accreditation of Hospitals.

Section 9. KSA 21-409, 21-410, 21-437 are herewith repealed.

APPENDIX

A. California Health and Safety Code (1967)

CHAPTER 11
Abortion

[Added by Stats 1967 ch 327 § 1.]

§ 25950. Citation of chapter.
§ 25951. Conditions for performing abortion: Hospitalization of patient: Approval by committee: Impairment of physical or mental health: Rape: Incest.
§ 25952. Rape or incest: Application for abortion: Notice: Affidavit: Duties of district attorney: Probable cause: Petition to superior court: Hearing: Evidence: Findings: Closed hearing: Admissibility of testimony in other proceedings: Age of mother: Perjury prosecution.
§ 25953. Members of committee: Time for termination of pregnancy.
§ 25954. "Mental health."

§ 25950. Citation of chapter.

This chapter shall be known and may be cited as the Therapeutic Abortion Act. [Added by Stats 1967 ch 327 § 1.]

15 UCLA LR 1. California's new therapeutic abortion act: an analysis and guide to medical and legal procedure.

§ 25951. Conditions for performing abortion: Hospitalization of patient: Approval by committee: Impairment of physical or mental health: Rape: Incest.

A holder of the physician's and surgeon's certificate, as defined in the Business and Professions Code, is authorized to perform an abortion or aid or assist or attempt an abortion, only if each of the following requirements is met:

(a) The abortion takes place in a hospital which is accredited by the Joint Commission on Accreditation of Hospitals.

(b) The abortion is approved in advance by a committee of the medical staff of the hospital which committee is established and maintained in accordance with standards promulgated by the Joint Commission on Accreditation of Hospitals. In any case in which the committee of the medical staff consists of no more than three licensed physicians and surgeons, the unanimous consent of all committee members shall be required in order to approve the abortion.

(c) The Committee of the Medical Staff finds that one or more of the following conditions exist:

(1) There is substantial risk that continuance of the pregnancy would gravely impair the physical or mental health of the mother;

(2) The pregnancy resulted from rape or incest. [Added by Stats 1967 ch 327 § 1.]

15 UCLA LR 1. California's new therapeutic abortion act: an analysis and guide to medical and legal procedure.

§ 25952. Rape or incest: Application for abortion: Notice: Affidavit: Duties of district attorney: Probable cause: Petition to superior court: Hearing: Evidence: Findings: Closed hearing: Admissibility of testimony in other proceedings: Age of mother: Perjury prosecution.

The Committee of the Medical Staff shall not approve the performance of an abortion on the ground that the pregnancy resulted from rape or incest except in accordance with the following procedure:

(a) Upon receipt of an application for an abortion on the grounds that the pregnancy resulted from rape or incest, the committee shall immediately notify the district attorney of the county in which the alleged rape or incest occurred of the application, and transmit to the district attorney the affidavit of the applicant attesting to the facts establishing the alleged rape or incest. If the district attorney informs the committee that there is probable cause to believe that the pregnancy resulted from a violation of Section 261 or Section 285 of the Penal Code, the committee may approve the abortion. If, within five days after the committee has notified the district attorney of the application, the committee does not receive a reply from the district attorney, it may approve the abortion. If the district attorney informs the committee that there is no probable cause to believe the alleged violation did occur, the committee shall not approve the abortion, except as provided in subdivision (b) of this section;

(b) If the district attorney informs the committee that there is no probable cause to believe the alleged violation did occur, the person who applied for the abortion may petition the superior court of the county in which the alleged rape or incest occurred, to determine whether the pregnancy resulted from a violation of Section 261 or Section 285 of the Penal Code. Hearing on the petition shall be set for a date no later than one week after the date of filing of the petition.

The district attorney shall file an affidavit with the court stating the reasons for his conclusion that the alleged violation did not occur, and this affidavit shall be received in evidence. The district attorney may ap-

pear at the hearing to offer further evidence or to examine witnesses.

If the court finds that it has been proved, by a preponderance of the evidence, that the pregnancy did result from a violation of Section 261 or Section 285 of the Penal Code, it shall issue an order so declaring, and the committee may approve the abortion. Any hearing granted under this section may, at the court's discretion, be held in camera. The testimony, findings, conclusions or determinations of the court in a proceeding under this section shall be inadmissible as evidence in any other action or proceeding, although nothing herein shall be construed to prevent the appearance of any witness who testified at a proceeding under this section, or to prevent the introduction of any evidence that may have been introduced at a proceeding under this section, in any other action or proceeding.

(c) Notwithstanding any other provision of this section, an abortion shall be approved on the ground of a violation of subdivision 1 of Section 261 of the Penal Code only when the woman at the time of the alleged violation, was below the age of 15 years.

(d) Notwithstanding any other provision of this section, the testimony of any witness in a proceeding under this section shall be admissible as evidence in any prosecution of that witness for perjury. [Added by Stats 1967 ch 327 § 1.]

15 UCLA LR 1. California's new therapeutic abortion act: an analysis and guide to medical and legal procedure.

§ *25953. Members of committee: Time for termination of pregnancy.*

The committee of the medical staff referred to in Section 25951 must, in all instances, consist of not less than two licensed physicians and surgeons, and if the proposed termination of pregnancy will occur after the 13th week of pregnancy, the committee must consist of at least three such licensed physicians and surgeons. In no event shall the termination be approved after the 20th week of pregnancy. [Added by Stats 1967 ch 327 § 1.]

15 UCLA LR 1. California's new therapeutic abortion act: an analysis and guide to medical and legal procedure.

§ *25954. "Mental health."*

The term "mental health" as used in Section 25951 means mental illness to the extent that the woman is dangerous to herself or to the person or property of others or is in need of supervision or restraint. [Added by Stats 1967 ch 327 § 1.]

B. Colorado Revised Statutes (1967 Supplement)

40-2-50. Definitions.—(1) As used in sections 40-2-50 to 40-2-53:

(2) "Pregnancy" means the implantation of an embryo in the uterus.

(3) "Accredited hospital" means one licensed by the Colorado state department of public health and accredited by the Joint Commission on Accreditation of Hospitals.

(4) (a) (i) "Justified medical termination" means the intentional ending of the pregnancy of a woman at the request of said woman or if said woman is under the age of eighteen years, then at the request of said woman and her then living parent or guardian, or if the woman is married and living with her husband at the request of said woman and her husband, by a licensed physician using accepted medical procedures in a fully accredited hospital upon written certification by all of the members of a special hospital board that:

(ii) Continuation of the pregnancy, in their opinion, is likely to result in: The death of the woman; or the serious permanent impairment of the physical health of the woman; or the serious permanent impairment of the mental health of the woman as confirmed in writing under the signature of a licensed doctor of medicine specializing in psychiatry; or the birth of a child with grave and permanent physical deformity or mental retardation; or

(iii) Less than sixteen weeks of gestation have passed and that the pregnancy resulted from rape, as defined in section 40-2-25 (1) (a), (1) (c), (1) (d) and (1) (e), or rape as defined in 40-2-25 (1) (a), (1) (b), or (1) (j) if the female person has not reached her sixteenth birthday at the time of said rape; or incest, as defined in section 40-9-4, and that the district attorney of the judicial district in which the alleged rape or incest has occurred has informed the committee in writing under his signature, that there is probable cause to believe that the alleged violation did occur.

(5) "Special hospital board" means a committee of three licensed physicians who are members of staff of the hospital where the proposed termination would be performed if certified in accordance with sections 40-2-50 to 40-2-53 and who meet regularly or on call for the purpose of determining the question of medical justification in each individual case, and which maintains a written record, signed by each member, of the proceedings and deliberations of such board.

Source: Added by L. 67, p. 284, § 1.

40-2-51. Criminal abortion.—(1) Any person who intentionally ends or causes to be ended the pregnancy of a woman by any means other than by justified medical termination of the pregnancy or live birth is guilty of a felony, punishable by imprisonment in the state penitentiary for not less than three years nor more than ten years and by a fine in a sum not exceeding two thousand dollars.

(2) If any woman shall die as the result of the intentional ending of her pregnancy by any means other than by justified medical termination of the pregnancy or live birth, the person responsible is guilty of murder and shall be punished accordingly.

Source: Added by L. 67, p. 285, § 2.

40-2-52. Pretended criminal abortion.—(1) Any person who intentionally pretends to end the real or apparent pregnancy of a woman by any means other than by justified medical termination of the pregnancy or live birth is guilty of a felony, punishable by imprisonment in the state penitentiary for not less than one year nor more than three years and by a fine in a sum not exceeding one thousand dollars.

(2) If any woman shall die as the result of the in-

tentional pretended ending of her real or apparent pregnancy by any means other than by justified medical termination of the pregnancy or live birth, the person so pretending to end the real or apparent pregnancy is guilty of murder and shall be punished accordingly.

Source: Added by L. 67, p. 285, § 3.

40-2-53. Failure to comply.—Nothing in sections 40-2-50 to 40-2-53 shall require a hospital to admit any patient under the provisions of sections 40-2-50 to 40-2-53 for the purposes of performing an abortion, nor shall any hospital be required to appoint a special hospital board as defined in section 40-2-50. A person who is a member of or associated with the staff of a hospital or any employee of a hospital in which a justified medical termination has been authorized and who shall state in writing an objection to such termination on moral or religious grounds shall not be required to participate in the medical procedures which will result in the termination of a pregnancy and the refusal of any such person to participate shall not form the basis for any disciplinary or other recriminatory action against such person.

Source: Added by L. 67, p. 285, § 4.

C. North Carolina Session Laws (Regular Session, 1967)

CHAPTER 367

AN ACT TO AMEND ARTICLE II, CHAPTER 14 OF THE GENERAL STATUTES RELATING TO ABORTION AND KINDRED OFFENSES.

The General Assembly of North Carolina do enact:

Section 1. That G. S. 14-44 be amended by striking out the words "unless the same be performed to preserve the life of the mother" appearing in lines 5 and 6.

Sec. 2. That a new section be added designated as G. S. 14-46 reading as follows: Notwithstanding any of the provisions of G. S. 14-44 and 14-45, it shall not be unlawful to advise, procure, or cause the miscarriage of a pregnant woman or an abortion when the same is performed by a doctor of medicine licensed to practice medicine in North Carolina, if he can reasonably establish that:

there is substantial risk that continuance of the pregnancy would threaten the life or gravely impair the health of the said woman, or

there is substantial risk that the child would be born with grave physical or mental defect, or

the pregnancy resulted from rape or incest and the said alleged rape was reported to a law enforcement agency or court official within seven days after the alleged rape, and

only after the said woman has given her written consent for said abortion to be performed, and if the said woman shall be a minor or incompetent as adjudicated by any court of competent jurisdiction then only after permission is given in writing by the parents, or if married, her husband, guardian or person or persons standing in loco parentis to said minor or incompetent, and

only when the said woman shall have resided in the State of North Carolina for a period of at least four months immediately preceding the operation being performed except in the case of emergency where the life of the said woman is in danger, and

only if the abortion is performed in a hospital licensed by the North Carolina Medical Care Commission, and

only after three doctors of medicine not engaged jointly in private practice, one of whom shall be the person performing the abortion, shall have examined said woman and certified in writing the circumstances which they believe to justify the abortion, and

only when such certificate shall have been submitted before the abortion to the hospital where it is to be performed; provided, however, that where an emergency exists, and the certificate so states, such certificate may be submitted within twenty-four hours after the abortion.

Sec. 3. All laws and clauses of laws in conflict with this Act are hereby repealed.

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5. Halley, M. M.: Law-Medicine Comment (Artificial Insemination). *J. Kansas Med. Soc.* 69:487-489, October, 1968.
6. *Kansas Judicial Council Bulletin,* Special Report, pp.123-124, April, 1968.

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Cancer Page

Patient History:

The patient was a 78-year-old farmer. He experienced episodes of angina pectoris for the past eight years. He had known of a lump in the region of the right parotid gland for many years. He had been told not to bother it unless it bothered him. During the past year the lump had rapidly enlarged and in recent weeks, the patient had developed weakness in the facial muscles on the right. Examination revealed a large, hard, fixed mass in the right parotid area, and two firm nodes in the submaxillary triangle of the neck. The patient was taken to surgery and a radical excision of the parotid was performed, including sacrifice of the facial nerve combined with a radical neck dissection. The patient recovered and has now survived four years. He has paralysis of the right facial nerve.

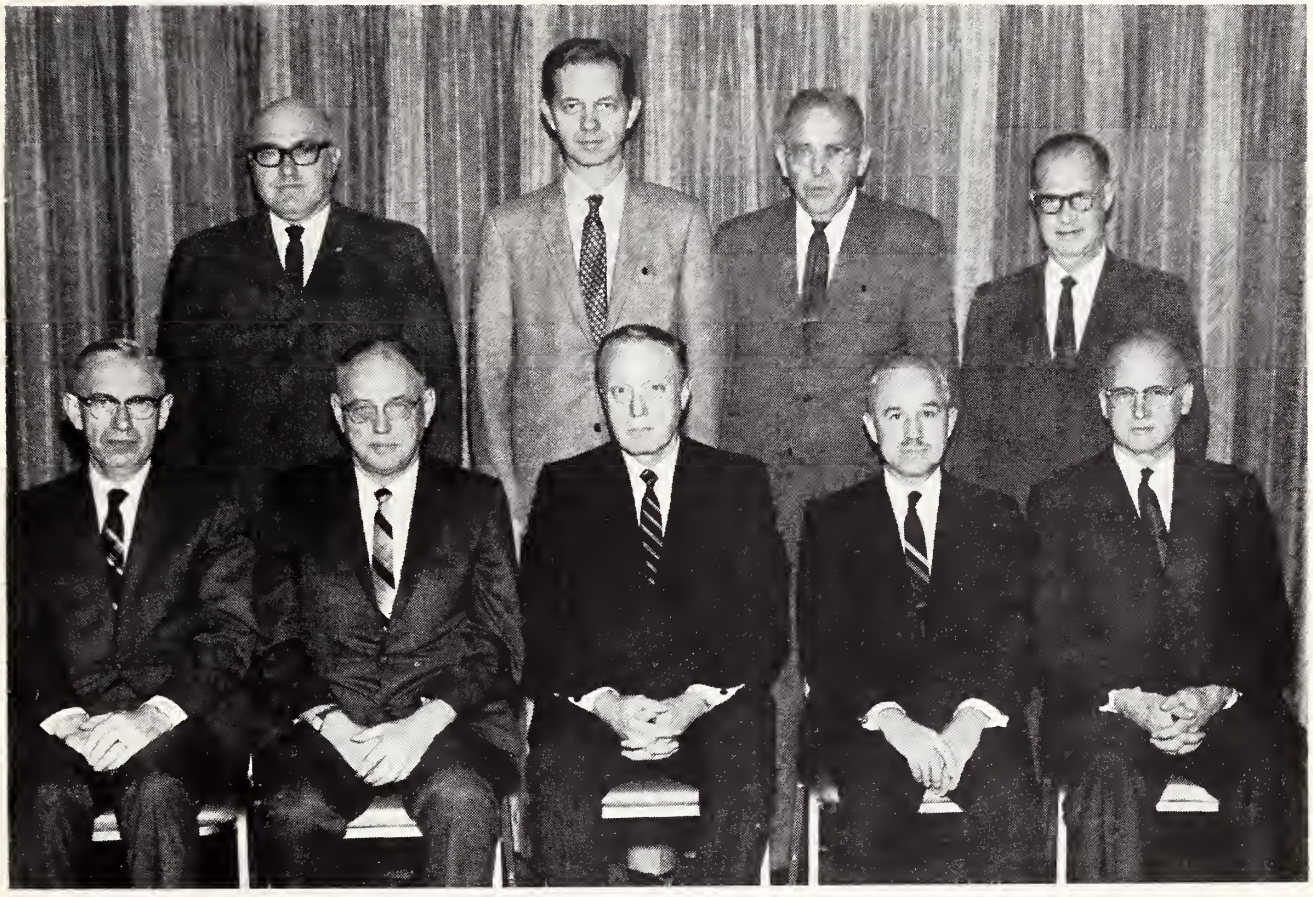
Comment:

Mixed tumors of the parotid gland often undergo malignant change after years of quiescence. Elective removal of the tumor at an early date, in this patient, would have obviated the risk to his life and preserved function of the facial nerve.

—The Committee for Control of Cancer

The President's Message

Christmas greetings from your Executive Committee



John C. Mitchell
AMA Delegate

C. M. Lessenden
Treasurer

Lucien R. Pyle
AMA Delegate

Emerson Yoder
Secretary

Wm. J. Reals
2nd Vice President

Geo. F. Gsell
Immediate Past President

J. L. Morgan
President

Leland Speer
President-Elect

F. T. Collins
1st Vice President



Editorial COMMENT

The 1969 Kansas Legislature

This session could evoke a greater than usual interest in health legislation. The massive Booz-Allen-Hamilton report to the legislative council contains sufficient proposals to occupy the full attention of the legislature, were each to be separately considered.

The Criminal Code will be placed before the legislature for revision. Included is a recommendation to amend the existing law on abortion. The Kansas Medical Society recommends this to be based upon medical judgment.

It is expected that the Healing Arts Act will be placed before the legislature for considerable amendment. Among others, the Kansas Medical Society has approved the relaxation of the citizenship requirement for licensure to where a non-citizen physician, if he meets all other requirements and practices in an area where doctors are needed, may have an annually renewable license until citizenship is obtained.

Several paramedical groups may ask for licensure. The Kansas Medical Society believes a license authorizes its holder to render independent professional judgment in his health service. The Society believes paramedical groups should be satisfied as to education; that their privileges should be carefully defined, and that they should be affiliated with the Board of Healing Arts.

The University of Kansas School of Medicine is becoming interested in organ transplants. If this is to include heart transplants the state must establish a new definition of death.

The Society has received rumors of a great many other health-related subjects that may receive legislative attention. Therefore, the importance of physicians in each area of the state becoming personally acquainted with their senator and representatives is greater than ever before. If good health legislation is to be enacted it is essential that the members of the legislature have an adequate understanding of the issues involved from the physicians in their own communities. The greatest assurance that the legislature will act wisely is for all members to be accurately informed. This can best be done before the legislative session begins.

Merry Christmas

The staff of your Executive Office sends each of you a most earnest and personal wish for a happy holiday season. If hoping could make it come true—

—your health will permit you to enjoy whatever you want to do, anywhere you wish to go.

—your work will bring you contentment and peace of mind.

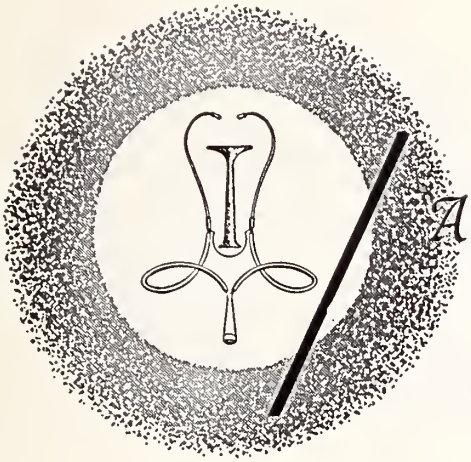
—your interest in the world around you and in people will continue to expand.

—your talent for leadership will improve the standards of your profession and your civic work will result in a better life for all in your community.

—your direction will guide us to a higher degree of cooperative effort so that together we may expand the service of this Society.

All that we wish you, and a Merry Christmas!

Oliver E. Ebel
R. G. Swenson
Val Braun
Mary Rogers
June Stratton
Velma White



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the* Doctor's Calendar. *Notice of the session is posted in advance to allow the physician time to make preparations.

JANUARY

Jan. 5-11 — Five-day seminar for physicians in industry, The Menninger Foundation, Topeka. Write: Division of Industrial Mental Health, The Menninger Foundation, Box 829, Topeka 66601.

Jan. 7-10 — Journal of Pediatrics Lectures, Denver Children's Hospital, Denver. Leo Stern, M.D., Asst. Professor of Pediatrics, McGill University, will present a series of lectures on cardiopulmonary problems of the newborn. Write: Joseph Butterfield, M.D., Denver Children's Hospital, 19th Ave. at Downing, Denver 80218.

Jan. 16-18 — American College of Physicians (Colorado Regional), The Broadmoor, Colorado Springs. Write: William A. H. Rettberg, M.D., 4200 E. 9th Ave., Denver.

FEBRUARY

Feb. 3-5 — American College of Surgeons sectional meeting, Sheraton-Fontenelle Hotel, Omaha. Contact: American College of Surgeons, 55 E. Erie St., Chicago 60611.

Feb. 8-13 — International Academy of Proctology annual congress and teaching seminar, Hollywood Beach Hotel, Hollywood, Florida. Contact: International Academy of Proctology, 147-41 Sanford Ave., Flushing, New York 11355.

POSTGRADUATE EDUCATION

University of Kansas Medical Center:

Jan. 29 — ***The Handicapped Child (Great Bend)***

Feb. 10-11 — ***Cardiovascular Pharmacology and Therapeutics***

Mar. 10-12 — ***Pediatrics***

Mar. 17-19 — ***Otorhinolaryngology***

Mar. 24-26 — ***Surgery***

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City, Kansas 66103.

University of Colorado:

Jan. 12 — *Crisis Recognition and Treatment*

Jan. 13-18 — *General Practice Review*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East 9th Ave., Denver 80220.

University of Nebraska:

Jan. 17-18 — *Basic Review of Electrocardiography*

Jan. 24 — *Diagnostic Significance of Acute and Chronic Gastrointestinal Blood Loss*

Feb. 10-11 — *Common Problems and Management of the Newborn*

Feb. 17-19 — *Closed Chest Cardiac Resuscitation*

For further information write The Department of Postgraduate Education, University of Nebraska Medical Center, Omaha, Nebraska.

Feb. 21-22 — *Postgraduate Continuation Course in Gastroenterology*, co-sponsored by the Institute of Gastroenterology, Good Samaritan Hospital and V. A. Hospital, Phoenix, Arizona. The course will be held at the Del Webb TowneHouse. For further information and registration forms contact: David C. H. Sun, M.D., Good Samaritan Hospital, Phoenix 85002.



Book REVIEWS

HANDBOOK OF ORTHOPAEDIC SURGERY, by Alfred R. Shands, Jr., and R. Beverly Raney, Sr. (7th edition), C. V. Mosby Company, St. Louis, 1967. 572 pages, illustrated. $12.00.

Dr. R. Beverly Raney and Dr. Alfred R. Shands, Jr., with the help of several collaborators have completed a very helpful volume in dealing with the non-traumatic areas of orthopedic surgery (orthopedic disease).

The book is organized in major sections or orthopedic pathology both congenital and acquired and subsequently, in chapters 16 through 22, an organization of material on a regional basis with regions of skeletal anatomy as the breakdown for presentation of materials.

This edition also contains a very well organized bibliographic section again oriented to regional anatomy.

This volume will be found by its owner to be particularly helpful in reviewing fundamentals of orthopedic pathology in a well organized and lucid manner. It is the opinion of the reviewer that this volume will find an extremely useful place in the library of not only those physicians practicing orthopedic surgery, but also in the libraries of those physicians practicing general surgery and general medicine.—*D.D.H.*

FOR THOSE WHO LIVE AND BREATHE WITH EMPHYSEMA AND CHRONIC BRONCHITIS, by Thomas L. Petty and Louise M. Nett, Charles C Thomas, Springfield, 1967. 106 pages, illustrated. $5.50.

This book contains concise explanations of emphysema and chronic bronchitis as well as medical and surgical treatment. It also discusses the use of breathing machines and oxygen, especially in the follow-up treatment in the home. It explains the general management of the patient with emphysema and chronic bronchitis in a very detailed manner, however it does not give any easy way to get the patient to stop smoking.

It is a well written book, easy to understand, and should be a valuable addition to the library of any physician, nurse, or inhalation therapy department. —*W.N.*

PSYCHIATRY (MEDICAL OUTLINE SERIES), by Merrill T. Eaton, Jr., and Margaret H. Peterson, Medical Examination Publishing Company, Flushing, N. Y. 564 pages. $6.00.

This is an extensive summary of psychiatry which is not limited in value to medical students or interns; but of special interest to those preparing for examinations or wishing an easy reference to general concepts, clinical entities, treatment modalities, forensic psychiatry or a history of the specialty. There is a special section, "Reviewing for Board Examinations," as well as review questions which follow each chapter. The succinctly stated idea with underlining and in outline form makes the material easy to find and to remember.—*J.A.D.*

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RECENT ACQUISITIONS

American Dietetic Association. Lydia J. Roberts award essays; a compilation of essays. Chicago, 1968.

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KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in September, 1968 and 1967

Diseases	*September* 1968	1967	*5-Year Median* 1964-1968	*January-September Inclusive* 1968	1967	*5-Year Median* 1964-1968
Amebiasis	—	—	—	11	12	11
Aseptic meningitis	1	6	4	6	7	7
Brucellosis	—	—	—	2	—	2
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	2	2	15	8	14	30
Encephalitis, post-infect.	—	—	*	9	2	*
Gonorrhea	436	352	352	3,292	2,968	2,396
Hepatitis, infectious	32	21	32	301	157	301
Measles (Rubeola)	—	*	*	8	*	*
Meningococcal meningitis	—	—	—	24	7	13
Mumps	—	*	*	705	*	*
Pertussis	—	—	—	4	7	11
Poliomyelitis	—	—	—	—	2	—
Rheumatic fever	—	—	—	3	2	2
Rubella (German Measles)	2	*	*	118	*	*
Salmonellosis	41	33	33	234	169	219
Scarlet fever	—	5	7	28	57	67
Shigellosis	11	16	12	73	40	73
Streptococcal infections	77	162	93	1,775	2,161	1,799
Syphilis	143	100	100	960	892	892
Tinea capitis	5	—	5	42	44	44
Tuberculosis	20	15	20	174	174	195
Tularemia	2	—	—	5	11	4
Typhoid fever	1	—	—	2	1	2

* Statistics not available.

EPIDEMIOLOGIC NOTES AND REPORTS —HUMAN RABIES—ELK CITY, KANSAS

On October 10, 1968, a 13-year-old boy from Elk City, Kansas, died after a 63-day illness that has been diagnosed as rabies. His initial symptoms on August 7 were malaise, anorexia, nausea, and vomiting. Over the next ten days he developed fever, confusion, hallucinations, numbness, paresthesias, and paresis of the right hand and arm. On August 17, the boy experienced increased confusion and marked respiratory distress. That same day during his transfer to a hospital in Wichita, he suffered cardiorespiratory arrest, but was resuscitated after experiencing anoxic seizures. Over the next few days, he suffered several other respiratory arrests. He became comatose and had flaccid quadriplegia which lasted during the remainder of his illness. Throughout his hospitalization, but especially during the last six weeks, he appeared to have excessive salivation and respiratory tract secretions. He died following cardiorespiratory failure.

The patient had no known history of exposure to rabies, and the clinical impression during his illness was encephalitis of unknown etiology. Routine hematologic and chemical tests were within normal limits; cerebrospinal fluid revealed a cell count of 87 white cells with 90 per cent lymphocytes and a protein of 74 mg per cent. Stool cultures were negative for polio and other enteroviruses. Serologic tests were negative for Western Equine, California, and St. Louis encephalitis and for mumps, lymphochoria-meningitis, poliomyelitis, psittacosis, and Rocky Mountain spotted fever. Rabies neutralizing antibody showed a rise in titer from less than 1:5 on serum drawn August 17 to greater than 1:50 on serum drawn September 6. These results were confirmed by indirect fluorescent antibody and complement-fixation tests. Fluorescent antibody staining for rabies antigen and mouse inoculation studies of the patient's brain following autopsy were positive, confirming the diagnosis of rabies.

Epidemiologic investigation in Elk City revealed a

unique ecological opportunity for the development of human rabies. The town of 525 people in a rural area of southeastern Kansas has an animal population of at least 150 dogs, 150 cats, and an unknown number of stray animals. Both the human and animal populations are in close contact with a large skunk population in which rabies has been found. The level of immunization in the domestic animals against rabies is less than ten per cent. The patient had a paper route which covered the entire town. He was bitten and nipped by many animals several times per week since acquiring the paper route in January 1968. Because of the lack of known exposure to a rabid animal, the boy received no antirabies therapy.

The following recommendations were made by local and state authorities in Kansas: (1) vaccination of all dogs and cats against rabies; (2) elimination of all stray animals; (3) a systematic reduction of the wild skunk population.—From *Morbidity and Mortality Weekly Report*, U. S. Public Health Service, Vol. 17, No. 42, for week ending October 19, 1968.

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